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PSYCHIATRIC EXPERIENCE IN THE SPANISH WAR

BY

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The fears by which the civilian of any city in Republican Spain was likely to be troubled during the recent war were: (*a*) that he or his family might be killed or wounded by bombardment, whether from the air or by artillery; (*b*) that he might be called upon to serve at the front in the Army; (*c*) that he and his family might be slowly but progressively starved, owing to the scarcity of food; and (*d*) that he might be ruined economically, owing to the fall in the purchasing power of Spanish Republican money. It was the last two fears that, in fact, proved to be the better founded.

Effects of Bombardment and Hunger

Broadly speaking, it can be said that what the average English reader has been told about the facts of bombardment in the crowded cities of Spain is exaggerated. No doubt, from a moral point of view, air raids are an unbearable outrage for the civilized man, whose normal reaction is one of "repugnance and horror" (as Mr. Chamberlain said in regard to the terrible air raid suffered by Barcelona on March 17, 1938). But if we coldly look at the facts we find that less damage was done than might have been supposed: the number of people killed in Barcelona by bombing in over 250 air raids was no more than 4,357, which is almost identical with the number of deaths caused by street accidents (mainly car accidents) in the city during the same period of time (thirty months). So it may be said that the probability of being injured by a lorry, motor-cycle, or motor-car when walking round the streets of Barcelona or Madrid in time of war was almost as great as the chance of being injured by a bomb.

The Spanish people very quickly adjusted themselves to air raids, and although only 10 per cent. of the population of Barcelona could be protected by shelters these were by no means crowded during the day-time raids. The average inhabitant, being convinced of the small risk of death from a direct hit by a bomb falling on him, preferred to remain in his office or flat rather than to walk along the street to get to a shelter. The only precaution adopted was to keep away from windows and glass, which might be easily broken by the "blast" following the explosion of a bomb in the neighbourhood. When air fighting was going on, even those who had bumped their heads rushing into a shelter in the beginning of the raid soon bumped them again as they ran out to see what was happening, curiosity proving stronger than fear. Conditions were, of course, different at night: then, all that people wanted was quietness and rest, and in order to get both they travelled out of the city or slept in the underground stations or in shelters, since otherwise the loud noise of anti-aircraft guns and of bombs was not unlikely to awaken them two or three times in the same night.

Very much worse in psychological effects than the air raids was the slow but continually increasing hunger, observed especially among the civil population of the big cities (Madrid and Barcelona). In Madrid at the end of 1938 there were 35,000 cases of pellagra. The symptoms were cutaneous rather than mental, and responded well to nicotinic acid, which was sent from the United States and administered by mouth and hypodermically. It is significant of the conditions prevailing that in Madrid, with its population at that time of 800,000, the official allowance of food provided only 1,200 calories daily for each person. People who would stand their ground in the food queues during an air raid became desperate and hopeless, when they failed to get the promised amount of bread or other basic nourishment. Hence a special attitude of mind was aroused, not by the physical effects of the guns and bombs but by the insidious mental effects of starvation. Thus the cry, "I don't care what happens, but I must and will *eat*," was a warning sign of what some months later came to pass—namely, the sudden and total collapse of Republican resistance. In the war butter was quite as important as guns.

Incidence of Mental Illness

The amount of psychiatric illness which developed during the war did not call for the provision of more psychiatric beds than had been available in time of peace. The number of beds actually occupied and the population to be dealt with varied according to the shifting fortunes of Republican Spain; the population can be estimated roughly at 11,000,000 before the last offensive. This was true of both the combatant and the civil population. In my duties as Chief Psychiatrist to the Army I had much opportunity for judging the incidence of mental illness. The proportion of beds was one to a thousand men—that is, there were 825 beds for an army of roughly 850,000. There was no increase in the amount of psychosis over that observed in peace-time; there were more neurotic conditions, but since it was not necessary to keep these patients under observation for the same length of time as had been customary when dealing with psychiatric conditions before the war, the actual number of beds remained about the same. Soldiers who showed anxiety or other neurotic symptoms were promptly withdrawn from the front line and taken to hospitals some twenty-five to thirty miles further back, where they were treated by the same methods as the civilian population (see below). In most cases it was possible for the soldier to be returned

to the front line after an intermediate period of "reconditioning," during which he was gradually prepared for the rigours of the front. Few of these men relapsed. That there was on the whole so little neurosis in the Army and that it could be dealt with satisfactorily may be attributed largely to the selection of the soldiers. Until the last months of the war no man over 35 served other than voluntarily. Moreover, as various batches of men came to be enrolled, any who reported that they had had any neurotic symptoms at any time were referred to a psychiatrist, who would see that those prone to a nervous breakdown were not put in the actual combatant services but were drafted into some auxiliary service—for example, transport. This was one of the most important activities of the psychiatrists during the war, and called for psychiatric ability and experience to a greater extent than the immediate care and treatment of psychiatric casualties, which, as mentioned below, could be largely reduced to a routine. The men at the front were a selected and stable group.

A similar selection occurred to some extent in the civilian population, inasmuch as the first few bombardments of Barcelona drove the more sensitive and timid inhabitants out into the country, where they remained. After a time the people in the city became almost indifferent to a bombardment if it did not affect their own district. Those who were brought into hospital immediately after an air raid were almost exclusively people who had been in the immediate neighbourhood of a spot where a bomb had fallen. Unless the upset was fairly severe, people were not brought into the neurological or psychiatric centre, but were treated, perhaps by the chemist, or were taken straight home. Some would show hysterical reactions (conversion symptoms, however, were rather uncommon, because many of the gross hysterics had fled the city before, or at, the first bombardment), some would be in a stupor, and many would show anxiety. It should, however, be emphasized that a great part of the population would feel what may be called "normal anxiety" during an air raid, but never needed psychiatric attention. Those with hysterical reactions could be promptly dealt with by rather rough-and-ready means. Often contact with other patients obviously more ill than themselves had the effect of putting an end to their symptoms and they were able to return home.

Of the *anxiety cases* some appeared to be due to actual physical damage to the brain—commotio cerebri, mostly from the small bombs which were used in the bombardment of the civilian population, as well as large incendiary bombs. Those whose state of anxiety corresponded to what is seen in civil life were treated by isolation and sedatives, amounting for the first four or five days to continuous narcosis. The amount of sedative drug was then gradually reduced and the patient reassured: no more psychotherapy seemed to be needed by these patients than brief reassurance for a few minutes on one's regular visit. If such measures as these were not successful the patient fell into one of two classes—the malignant group and the semi-chronic.

Malignant Type of Anxiety (Psychorrexis)

The clinical picture was from the beginning somewhat anomalous: the patients showed anguish and perplexity rather than fear or excitement; they remained sitting or lying without any spontaneous activity, barely answered questions, except with "Yes" or "No," could scarcely concentrate, but were not very confused; the pulse rate was permanently above 120, and the respirations were 40 or more (in two cases I saw they were 75). At first sight they looked like overstrained dogs. The tendon reflexes were much increased; the cutaneous reflexes were exaggerated, but were more variable. No focal symptoms were observed. The urine was concentrated and extremely acid, with a peculiar smell.

At the end of the first week, sometimes even earlier, the temperature rose very quickly and the general state became worse. The tongue became ulcerated and blackish; the skin was slightly jaundiced, the abdomen tympanitic. The mental state changed: although the anguish remained, the patient became restless and exhibited an increasing number of automatic movements; carphologia appeared; subsultus tendinum and facial spasms, specially roused by touch, were observed. Death occurred after three or four days in fatal cases. Such cases could not be regarded as delirium acutum, because there was no delirium; neither could they be considered as "encéphalites psychotiques" (in the French terminology), because the cerebrospinal fluid was normal except that the pressure was always increased, and no focal symptoms were observed. In some, post-mortem examination showed swelling of the brain and even haemorrhages. Hence we used the term "psychorrexis" as a provisional word for statistical purposes.

TREATMENT

Various methods of treatment were tried. The small number of cases recorded (twenty-eight in Barcelona and about 100 in the whole territory—not more than 2 to 3 per cent. of all the psychiatric cases) did not permit of definite conclusions, especially as in the majority of those ending fatally it was not possible to get the aid of a pathologist and no necropsy was made. We first employed the treatment strongly recommended by French writers as being successful in cases of infectious psychosis—that is, intravenous injections of large doses of electrargol, rodhiol, and other colloids. No definite effect was observed. The next treatment used was that of small doses of terebenthene, in order to produce three or four small focal abscesses, and adrenaline; this also was unsuccessful. Finally, we confined ourselves to symptomatic treatment and to intravenous injections of hypertonic solutions—magnesium sulphate 40 per cent., 15 c.cm., and cylotropin—and of small but repeated doses of lobeline. By this method three cases were relieved and cured: their catamnesia had disappeared, and after one month they were discharged completely recovered. There were, however, some in whom this treatment was unsuccessful.

PREDISPOSING CONDITIONS

It seems clear that certain conditions are necessary to produce this severe and new form of anxiety psychosis. So far as we have been able to discover, these conditions are: (*a*) a previous lability of the sympathetic system; (*b*) a sudden and severe mental shock experienced in conditions of physical exhaustion due to lack of food, fatigue, sleeplessness, etc.; (*c*) a long delay before starting the sedative treatment. Thus in all the cases that I can recall more than a day had elapsed before they were brought into the psychiatric clinic. Still another factor must be added: in almost all the cases signs of hypocalcaemia were observed; broadly speaking, the majority of them could have been included in the "lytic" type of personality (that is, employing Jaensch's typology).

The Semi-chronic Cases

These cases were drafted to one of the psychiatric hospitals on the outskirts of Barcelona, where physical exercises and occupational therapy were found to be the most

efficacious way of dealing with the persisting symptoms. Prolonged psychotherapy was not called for. In all neurotic cases, whether in the auxiliary services of the Army or the rest of the population, work was insisted on as a therapeutic and social duty. Medical officers in charge of these patients had wide powers of compulsion for the purpose. There were 3,000 psychiatric beds for the civil population in Barcelona, but these served for much more than the 1,600,000 people of Barcelona; they covered a population of some 3,000,000 people. At a rough estimate it may be said that two-thirds of these beds were occupied by the chronic insane.

The majority of the cases seen in the psychiatric hospitals were anxiety states, often of hysterical nature, characterized by trembling, shivering, inertia, and depression: in some there was continual restless activity, like that of senile excitement. In the Army one sometimes found that, after having been bombed all day, men who were now told that they could leave the line showed great lack of initiative and spontaneity. Sometimes restlessness and anxiety developed after an initial phase of relative calm. There was very little weeping or outcry, and hardly any hysterical amnesia. Where such symptoms as hysterical aphonia occurred physical measures were found adequate—for example, faradization and other suggestive treatment, or light ether anaesthesia. Where amnesia occurred in those near whom a bomb had fallen it generally turned out to be due to organic cerebral happenings, and in some cases was associated with aphasia. Headache always raised suspicion of increased intracranial tension. Lumbar puncture was performed on such patients, and indeed on every soldier coming from the front line with some mental disturbance. In this way increased intracranial tension, slight meningeal haemorrhages, and other significant findings could be recognized. In my clinic of 150 beds it was found necessary to perform about 500 lumbar punctures a month.

TREATMENT

The immediate treatment for acute anxiety was to put the patient to bed, and for about half an hour to employ reassurance by nurses, encouragement to lie quietly, breathe slowly, etc. If the patient improved, sedatives were then given. If he did not improve, injections of sodium luminal and hyoscine were employed to bring about gradual narcosis. For a mild case in which the patient weighed less than 65 kg., 7 cg. of sodium luminal and 0.5 mg. of hyoscine hydrobromide were given intramuscularly; for a more excited or a heavier patient the respective doses would be 10 cg. and 0.5 mg. Morphine was found unsuitable to quiet a patient, because it did not afford relief in acute anxiety and its use was difficult to control, many psychopaths and addicts taking advantage of the opportunity to get the drug. If the patient was weak or had cardiac symptoms, 0.2 mg. of digitalin would be given twice daily or as appeared appropriate, along with the injection of sodium luminal and hyoscine. Treatment was continued until the patient was asleep, but did not aim at profound narcosis. The majority of those being treated could be sufficiently roused to swallow their food. The average duration of treatment was seven days, but if the patient was improving the dose was reduced, usually on the fourth or fifth day. It was especially the cases with much tremor but no subjective feelings of anxiety that seemed to require treatment for longer than seven days. In one such case, which had at first been thought to be hysterical, the treatment had to be continued for twenty-two days before recovery was attained. If the treatment was prolonged for a fortnight or more ten units of insulin would be given daily to combat vomiting and other toxic features. Usually during the first seven days the cases were divided into those who could go home and those who were still afraid or were developing new symptoms. The latter were transferred, as mentioned above, to outlying hospitals, where occupational therapy proved very effective.

In none of the cases mentioned above was psychotherapy found to be necessary. It is striking that after the war had been going on for some time the number of psychiatrists in Spain, though not by any means large, was found to be greater than the psychiatric demands of the population required, and consequently some of them were given ordinary medical and surgical work to do. It was found that systematic psychotherapy tended to do harm rather than good, particularly in the case of soldiers. When a man did not return to his post after a nervous breakdown his comrades were quick to notice it, and there was a tendency for more neuroses to appear. It was found preferable to send a man back to the line without being completely cured, if the measures outlined above were not effective; in such a case special instructions were delivered to the corresponding military physician. It was our experience that you can always fill your psychiatric beds, no matter how many you decide to have; the supply creates the demand. So far as the civil hospitals were concerned there was no inducement for hysterical patients to keep up their symptoms. Conditions in the hospital were no better than those elsewhere: there was no heating, the food was meagre, and amenities generally were, if anything, less than at home.

The majority of those admitted to the central hospital in Barcelona following air raids could, as stated, be discharged after a week, or at most a fortnight, of the treatment outlined above—that is, isolation, sedatives, and reassurance. They were sent back to their homes, and hardly ever reappeared in the clinic during subsequent raids. It may be inferred that, unless they were again actually confronted with the immediate results of a raid, they were not affected. Patients who had been discharged were advised to attend in the out-patient department of one or other of the hospitals. Few, however, did this, and where it was possible to inquire why they had neglected to attend, they said that they did not want to miss their place in the food queue, or that they did not want to risk injury from bombardment on their way across, or that they did not feel that there was any need for treatment.

It was also noteworthy that the group of neurotics, psychopaths, and mildly insane people who usually fill out-patient departments were not seen during the war. Most of the mildly insane were early in the war admitted to mental hospitals because their families were no longer able to look after them. Depressed and neurotic patients whom I had looked after in private found relief in working for some public service—for example, social work. There was no noticeable increase in the average rate of suicide. I had the impression that many depressed and other mentally ill people were better when confronted with the actual demands and situations that arose during the war than when they were concerned only with their conflicts.

Preventive Measures

The medical practitioners (apart from the psychiatrists, of whom there were about thirty-five in Barcelona) were supplied with accurate and regular information about the nervous symptoms that they might meet with, and the ways of treating them rapidly and efficiently. As a measure of mental hygiene all soldiers received a copy of a booklet. By these, and the avoidance of any

measures that would stir up alarm, "psychical contagion" was avoided, and I did not, during the whole time of the war, hear of any instance of panic breaking out in a large city. I have seen people at the cinema in Madrid come out on the balcony to bet on the nature of a shell as they watched the flash of its explosion. So far as propaganda went, it was found that direct measures were less efficacious than indirect reassurance of the population as a whole, and the suppression of terrifying rumours or facts. Some control of books, newspapers, and films proved necessary to this end.

A word may be said about the children. On the whole, they were more tranquil than the adults during air raids; either they did not realize the danger or they thought themselves protected against it. No special measures had to be taken to deal with children from the point of view of mental disturbance.

It is to be hoped that the above data will be of historical interest, and, if occasion should arise, of practical help to those who will be responsible for the treatment of the neuroses of warfare.

PARANOID PSYCHOSIS WITH ADRENO-GENITAL VIRILISM SUCCESSFULLY TREATED BY ADRENALECTOMY

BY

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In *The Adrenal Cortex and Intersexuality* (1938) we describe a case (Case 13) of adrenogenital virilism with psychosis in which recovery from the psychosis followed adrenalectomy. At that time we were uncertain as to the relation of the adrenalectomy to recovery, since the case was not examined psychologically until after the operation. We now describe a similar case—that of a woman aged 34 suffering from hirsutes and a paranoid schizophrenic psychosis.

Family History of the Patient

Her father is alive, aged 65. He is a bad-tempered, obstinate man who is mean with his money. He takes little interest in his family and is indifferent to the patient. Her mother is alive, aged 61. She suffers from secondary deposits of breast cancer which has been removed. She is said to be dominant and to force her ideas on people, but is good-tempered. She has favourites, though the patient has never been one of them. The patient has two sisters and a brother. They are all normal except that the elder sister is dominant like the mother. In temperament they are easy-going and good-natured. None of the family suffers from adrenogenitalism or psychoses.

Personal History

The patient showed a more or less typical prepsychotic history. She was the "odd one out" in the family, and said: "I was always the awkward one. I quarrelled with people. At school I disliked arithmetic, but liked history and won several prizes. I was looked upon as a slow plodder, but was always overshadowed by my sister, who was brilliant. Once my parents were sent for and told that either I would not or could not work." Her father disliked children, and they had to be sent to bed before he came home. In spite of the unhappy home she succeeded fairly well at school, but her parents moved before she could reach the top class. She left school at the age of 15 and entered the Civil Service as a telegraphist at the age of 16. She soon found that the life was not easy, and complained of symptoms of maladjustment. She developed telegraphist's cramp and had to be transferred to the sorting department. Then she had exophthalmic goitre, which was treated by iodine. A year later she passed as a writing assistant and the goitre disappeared. She was soon placed on machine work (which she disliked) and the goitre and the cramp reappeared. She noticed that the hirsutism which had started at the age of 14 became thicker at the reappearance of the goitre at 18, but she was given sunlight and diathermy, and was transferred to clerical work, the goitre and cramp then disappearing. She continued to do this sort of work, and remained well until she was promoted at the age of 24. She then came in contact with religion. Previous to this she had been fairly social, played tennis, attended dances, and disapproved of religion. She was converted by a clergyman who preached a sermon on *uncleanliness*. She said: "I could find nothing unclean in my life except theatres and dances, so I gave them up. But I was not happy: the hair was spreading." The office doctor sent her to a skin hospital, and she consulted a physician, who gave her mixed glandular therapy (thyroid, parathyroid, ovary, and anterior and posterior pituitary extracts). It was after this that she went on holiday, and whilst away started to feel that her body, however much she washed it, seemed unclean. At this time (six years ago) she felt that she was beginning to smell. During the following years she showed no improvement, and in fact started to perspire a great deal. This made her feel that people were talking about her in the street, and aural and olfactory hallucinations commenced. These mainly referred to her foul odour and hirsutism.

A year ago she came under Dr. R. D. Gillespie's care and was given psychotherapy by his assistant, Dr. Parsons. She was treated for some months, but showed no marked change, and was then sent by Dr. Gillespie to Charing Cross Hospital, although certification was considered.

Psychosexual History

She admitted that she had masturbated at the age of 6, but denied that she had done it since or worried about it. She felt attracted to boys at the age of 12, although her periods did not start until she was 16. This heterosexuality did not persist, since she had no love affairs, although when 21 a young man was attracted to her. After a dance she decided that she did not want him, and told him that she did not wish to go out with him. This was partly due to her feelings about her hirsutism; but her urge to marry could not have been very strong to have been diverted in this way. Someone told her that her voice was like a boy's after it had broken, and this caused a great deal of worry at this time.

She was very emotionally attached to a girl friend who was abroad, and remarked significantly, "She has a piece of me and I have a piece of her." Although she gave no very strong signs of being consciously homo-

sexual (apart from her attachment to her girl friend), yet during her psychosis she produced considerable evidence to show that there was a strong unconscious element.

Personality

Her personality confirmed the facts of her psychosexual life. She was a feminine type of woman, not overtly homosexual. Her hobbies were elocution and music, and her pleasure dancing. She played tennis, and enjoyed cycling and stamp-collecting. Clothes she preferred neat but not too plain. No cosmetics were used, but she would have used them had it not been for the hirsutism. She was not much interested in hairdressing and did not pay much attention to hats. Her shoes were comfortable rather than fashionable. She was terribly shy because of the hirsutes, but liked admiration from both sexes. She smoked a little and liked alcohol, but drank little.

Psychosis

When examined at the time of her admission to hospital for laparotomy she showed definite signs of psychosis. She was grossly hallucinated, and constantly complained of, and answered, "voices" which stated (she said) that she smelled. These "voices" seemed to be "talking down a phone." They seemed to be torturing her to some extent since they demanded if she was terribly hungry (which in fact she was through fear of poisoning) and asked, "Where is the milk?" She was also obviously deluded, and stated that she was on "State oath" and that food was brought in for her but not given her, and, similarly, flowers which were sent to her were diverted elsewhere. Dr. Parsons (who had treated her under Dr. Gillespie) was talking to her. Apparently there was some idea of a conspiracy to injure her, and on one occasion she insisted on hiding her head under a pillow because "they" were trying to shoot her through the eyes. The food, she felt, was poisoned, and she would drink only milk brought specially from the kitchen for her. The delusions showed no proper systematization and she had no idea who "they" really were. She showed no deterioration and was properly orientated. Her memory for distant events was good but her immediate memory not so good, and she tended, probably from inattention, to fail on memory tests. Her intellect was excellent, and she rapidly subtracted serial sevens from one hundred without any mistakes. During the height of her psychosis before she had the adrenalectomy she spontaneously produced a number of notes describing her habits and thoughts. It is unfortunately impossible to give these in full, but they are strongly suggestive that she was unconsciously homosexual. She said in her notes: "The using of the enema gives me no satisfaction. Apart from this my mind seems to work like this, 'Do it [that is, urinate] standing up'—that seems in the back of my mind, but the thought is not like a man. Then at other times there is a terrible longing to pass standing up, but that is an urgent desire; and then my mind seems to say, 'If you were a man you could, but as a girl you cannot.' Other times, which I don't think are connected with the habit, the thought goes through my mind, 'You are just like a man.'" Again and again in her notes she remarks on this passing of urine standing up, which she connects with masculinity. Elsewhere she says: "It seems rather like this, something makes me want to do it [urinate] standing up and other odd ways, and the thought comes, 'If you were a man you could.'" On the other hand, she obviously revolted at the idea of being like a man, and it horrified her that the hirsutes made her masculine in appearance. Moreover, during her psychosis she had vivid fantasies of what she called "imaginary intercourse," and in these she was the female partner. It would appear that she was consciously heterosexual and unconsciously homosexual, or, in neurological language, partly conditioned to masculinity.

Owing to the absence of one of us (C. A.) she was not re-examined psychologically until twelve days after her adrenalectomy. She was then rapidly improving, and from the fourteenth day onwards became quieter and more sensible. She formed a heterosexual attachment to her dresser, who was very patient and interested in her case, and allowed him to remove the hair (which was more or less falling out) and do anything else necessary. Three weeks after her adrenalectomy she suddenly remembered her psychosis and became temporarily confused. She could not remember if she had had an operation until she looked at the scar, and said that she remembered her illness like a bad dream. One month after her operation she had completely lost her confusion and showed no signs of hallucinations or delusions. She had not proper insight, however, and still felt that her illness had been a real experience.

She was seen again three months after her operation and said that she felt very much better. She had no feeling of persecution and mixed with people without fear. She can travel without her former fears, and was generally more contented. She denied that she felt any more feminine, however, than before the operation. There have been no fantasies of intercourse since, and she has experienced no desire to pass water like a man. She still has no insight into her illness, but was willing to accept the explanation that it was the result of intoxication from her glands. Physically she had improved considerably and had few signs of hair, and this easily removable, with gentle plucking, without pain.

She has been seen repeatedly since then. On December 17, 1938, she seemed to be perfectly well, and except that she had no insight into her previous psychosis one would say that her recovery was complete. Seen again on February 11, 1939, she appeared in good health and balanced. She has reacted well to the loss of her work (which occurred through her psychosis) and to her mother's serious illness from carcinoma. She has adjusted herself to these events by taking night classes in shorthand and typing, in which she seems to be making good progress. There is still little insight into the nature of her illness, but otherwise her behaviour is absolutely normal.

Clinical History

The patient was admitted to Charing Cross Hospital on June 6, 1938, from Dr. Gillespie of Guy's Hospital, with symptoms of moderate virilism in association with paranoid psychosis.

The clinical history revealed the fact that at the age of 14 hair began to grow on her face, and gradually spread in the male distribution to other parts of her body. The menses started rather late, at the age of 16; they were regular but scanty, at first lasting two to three days in twenty-four. At 20 they became painful, and she experienced severe headaches on the second day. At the age of 26 her weight went up from 8 st. 6 lb. to 10 st. 4 lb., and with organotherapy settled down to 9 st. 4 lb. She has been told that her voice has a "funny tone," but in ordinary speech it is normal. The breasts are small, with a halo of hair round the nipples, but her figure is not obviously masculine, except that she has diminished subcutaneous fat. The hair on her face, legs, arms, and pubis is fairly strong in growth and dark in colour. Apart from this physical defect, which distresses her,

her sexuality, though frigid, differs from other types which we have dealt with in virilism in that she suffers from delusions. She imagined that she smelled, and it was difficult to collect her urine for biochemical investigations because of her desire to micturate standing up like a man.

She was troublesome about her food, thinking that it was poisoned, and she imagined people were trying "to get at" her, which made co-operation difficult. She refused operation, stating that the police had forbidden it, but after being assured that Scotland Yard had telephoned to say it was in order she finally consented to take the anaesthetic.

Operation.—On June 27 laparotomy was performed. The ovaries were cystic, the right being larger than the left, and the adrenal glands showed no obvious abnormality on palpation. Her mental condition deteriorated alarmingly after operation; her delusions became intensified, and it was necessary to resort to nasal feeding. It was decided to hasten the second-stage operation, and her right adrenal was removed on July 8. It was larger than normal, and the cortical cells gave a positive ponceau-fuchsin reaction. She continued to be very difficult to manage, relapsing into a state of indifferent disobedience. However, in about ten days' time she began to take more interest in herself and her surroundings, particularly in a new and sympathetic young dresser who was assigned to her case, and it was necessary to enlist his persuasive powers in order to secure co-operation.

Biochemical investigations relating to hormone excretion both before and after operation showed the following figures.

Capon Test (normal: 10 to 20 international units):

Pre-operative	80 I.U. daily
Post-operative (2 weeks)	8.5 „ „

Colour Test (normal: 5 to 14.6 mg.):

Pre-operative	10.8 mg. sterone daily
Post-operative:	
5 days	3.7 „ „ „
9 „	5 „ „ „
13 „	5.7 „ „ „
34 „	5.7 „ „ „
7 months	9 „ „ „
10 „	8.8 „ „ „

Discussion.—In view of our previous observations of improvement in sexuality following unilateral adrenalectomy, it was thought that operation might be suitably tried for this type of case. The immediate response to operation was a decided deterioration in the patient's mental condition, but it was interesting to note that her return to normal passed through a phase with a direct bearing on sexuality. For this reason the sterone content has been periodically examined, covering altogether a period of ten months, and it has remained below the pre-operative level on the colour test. The patient's clinical condition has remained satisfactory. This case shows the nature of sexuality and its relation to the functional psychoses which often coincide with endocrine instability—such as schizophrenia and involutional psychoses. If we examine the facts of the present case we see that they agree with the views expressed in our book, *The Adrenal Cortex and Intersexuality*. These are, that sexuality develops along two parallel lines—a somatic and a psychical development.

Physical Development of Sexuality

FOETAL LIFE

In this book the belief was expressed that the cause of somatic heterosexuality in women may lie in the developmental period of early foetal life. By the use of the ponceau-fuchsin staining technique it was shown that up to about the eighth week of development the adrenal cortex shows no indication of a secretory activity as determined by histological methods. After that time in the male there is a period of histological differentiation, which would seem to indicate a phase of very active androgenic secretion extending to about the twentieth week and then subsiding. In the female there is a similar but very much shorter period of androgenic activity, also intense, but lasting only from the age of 11 to 15 weeks and again subsiding; it was suggested that subsequent somatic heterosexual changes in this sex might be determined by this androgenic phase. It was also noted that the androgenic phase in the female comes to an end about the time of the histological differentiation of the cells of the anterior pituitary, and it has been suggested that the two events may be functionally correlated.

From these available data it seems possible that the tissues of the male foetus are exposed during the most vital period of development to a rather prolonged action of androgenic substances produced by the adrenal cortex, whereas in the female a similar exposure of equal duration is prevented, probably through the action of the pituitary gland. Since there is little doubt that the adrenal gland, subsequent to these special periods, secretes both androgens and oestrogens in small amounts, the changes that have been observed may represent a phase of tissue sensitization or preparation during which the highly plastic foetal cells are influenced by the adrenal secretion in such a way that they acquire the habit of utilizing more fully the one type of sex steroid or the other according to the genetic pattern of the somatic sexuality. For since somatic sexuality is characterized by differences in physical configuration, apart from the more local differences in structure of the sexual apparatus, we must suppose that every cell in the body is to a greater or less extent affected by this process of sensitization. We cannot therefore reasonably exclude the cells of the central nervous system from its effects, and there may be here a possible link between somatic sexuality and psychological sexuality which may be worth some further consideration.

So far as the evidence goes it would seem that the chromosomally determined genetic or inherited somatic sexuality is reinforced at an early date by the endocrine activity of the pituitary and the adrenal cortex. But it must be clearly part of such a concept that the path along which the glandular action is normally directed is also laid down genetically by the chromosomal pattern of the parental sex-cells, and that the glandular activity is therefore complementary to and co-operative with the genetic somatosexuality. Actually in point of time the differentiation of the sex organs must be genetically determined, for it is complete before the glandular reinforcement comes into effective operation.

If it is permissible to apply a psychological term to physical processes, it is evident that this glandular mechanism of early foetal life acts as a conditioning factor in regard to the genetic somatosexuality. While normally this conditioning is co-operative and synergic, functional errors of the glandular mechanism may lead to a sexual conditioning whose direction conflicts with that of the genetic path. So far as our results at present indicate, the female is in a sense a suppressed male, the element of suppression depending most probably upon the effective inhibitory action of the pituitary. In the male there is no evidence of any similar inhibitory mechanism. Hence errors of the adreno-pituitary mechanism are more likely to be limited to females and should lead to somatic heterosexual anomalies of that sex rather than of the other, since the conditioning of the genetic female sexuality comes to be determined by the unrestrained androgenic influence of adrenocortical activity.

The effects of such abnormal conditioning will vary

in degree and in the time of their appearance. Their degree will depend upon two factors: upon the degree of adreno-pituitary imbalance as compared with the normal, and upon the susceptibility of the genetic sexual pattern to the reversive glandular influences imposed on it, a factor which must vary with different individuals. The time of appearance—that is, symptomatic incidence—of somatic heterosexuality will be dependent upon the same factors, and it may either be immediate or delayed and latent. Immediate heterosexuality will occur in early foetal life at a time when the tissues are plastic and not yet fixed by the habit of growth, and it will therefore result in the changes of pseudo-hermaphroditism, a comparatively uncommon condition. Delayed or latent heterosexuality is, as might be supposed, much more common, and may become symptomatically manifest at any time after birth, but will be liable to appear, like most dysendocrinisms, more especially at those well-known periods of physiological stress such as severe illness, puberty, marriage, pregnancy and lactation, the climacteric, or even following some severe physical or mental trauma. Finally, as in other similar pathological states, in addition to those clinical cases in which somatic changes are sufficient to perturb the patient, there will be a still larger group of subclinical cases in which heterosexuality is present in minor degrees, either somatic or psychological, or both.

We may thus regard somatic heterosexuality in the female as a conflict between the inherent genetic sexuality and the conditioned sexuality which the abnormal glandular mechanism is endeavouring to impose upon it. Where the heterosexual changes are immediate, as in pseudo-hermaphroditism, it is probable that since they occur so early tissue stability has been reached by the time of birth and the process is complete. Where heterosexuality is latent, however, such stability is essentially lacking. A physiological crisis or stress may tip the balance over towards the side of the conflicting sexuality or may increase the underlying instability without causing symptoms which are frankly heterosexual. Yet there may result disturbances of the normal sexual physiology of mind or body, and it is not improbable that some at least of the difficulties of puberty may have such an origin.

POST-NATAL LIFE

Passing from foetal to post-natal life, the period of tissue preparation continues until its climax occurs at puberty. Throughout the period the tissues of each sex are subjected to the action of both androgens and oestrogens of adrenal origin, so that the sexuality is essentially bisexual, except that through the selective sensitization which occurred in early foetal life the habit has been acquired by the cells of reacting preferentially to androgens in the male and to oestrogens in the female. The adreno-pituitary mechanism, which is thus perpetuating the genetic sexual pattern, cannot of itself bring about complete sexual maturity, so that the function served by this co-operative conditioning in the prepubertal period is essentially that of preparation for procreation.

At puberty the prepubertal sexual mechanism is submerged by the massive output of both types of sex steroids from the now mature gonads, with excess of androgens in the male and of oestrogens in the female. This bisexual secretion of the gonads is presumably converted into a largely monosexual somatic effect through the preparatory sensitization of the tissues in the prepubertal period. Obviously, therefore, any defect in the mechanism of such preparation is likely to be made manifest at puberty in much magnified form as a somatic effect, and should there be a latent heterosexuality in the female—that is to say, a predisposition of the tissue cells to utilize androgens in excess of normal—its effects are likely to become evident symptomatically at this time. It may be remarked that in our cases of adolescent virilism the number of those with primary amenorrhoea was very small, and that the great majority of cases showed at puberty an initial activity of the gonads not very far removed from normal, although it was followed sooner or later by menstrual irregularity or even secondary amenorrhoea and suppression of normal ovarian function.

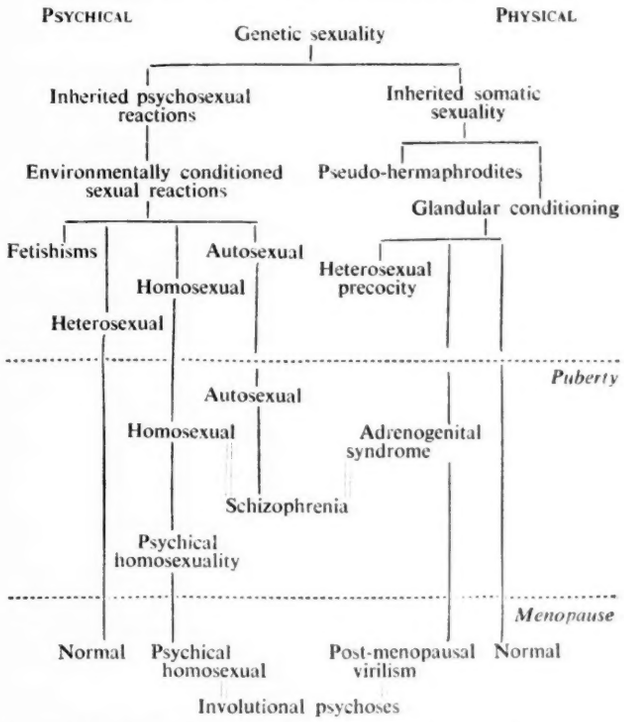
At the climacteric or in castrates the large secretion of the sex steroids is brought to an end, and racially the individual dies. The prepubertal type of bisexual adrenocortical sexuality returns to predominance, rather because it is a fundamental part of the normal physiology of the living organism than because it yet has any racial function to fulfil. At this time there is commonly a degree of adrenocortical hyperplasia which, combined with the comparative frequency of mild heterosexual changes, suggests a resurgence of the embryonic androgenic phase in an ageing physiology.

Psychical Development of Sexuality

The child possesses an original genetic urge which is vaguely heterosexual in nature. (This must be so, since some of our pseudo-hermaphrodite patients have attained heterosexuality in spite of being brought up as girls.) This inborn urge is based on some instinctual disposition, and this is capable of conditioning. In infancy the child

Chart showing Conditions leading to the Involutional Psychoses

(Note: Double lines mean psychical-endocrine reinforcement)



is mainly in contact with females and is conditioned to behave as a female. This accounts for the unconscious homosexuality in every male. After infancy the child is brought into contact with males and acquires masculine reactions. This results in the unconscious homosexual reactions in the female, which are acquired later than the male—hence homosexuality has never been regarded

so seriously in females as in males. There is then a period until puberty when sexuality is disregarded and discouraged. At puberty there is an outpouring of androgenic and oestrogenic hormones. We believe that the sex hormone tends to activate the sexual conditioning which accords with it—that is, androgenic hormones activate only male conditioning. If the individual has been conditioned so that its psychical sexuality accords with its somatic sexuality it excretes the oestrogenic hormone harmlessly, but, if not, the oestrogenic hormone activates the female conditioning in the male, producing the homosexuality so often seen at puberty. Once having reached heterosexual maturity the individual remains heterosexual (unless deprived of its proper sex object). At involution the endocrine instability may produce a similar result to puberty with similarly increased homosexuality.

Relation to the Psychoses

Pavlov has shown that neurosis in the dog (and presumably psychosis in the human) can result from conflict between different forms of conditioning. A great conflict in humans appears to be homosexual *versus* heterosexual conditioning. It is at those periods following puberty and the menopause that we have endocrine instability causing an accentuation of homosexual changes, and presumably these partly cause schizophrenia and involutional psychoses. The accentuation of the homosexual patterns produces terrific conflict with the heterosexual ones, and no doubt results in the cerebral disorganization we know as psychosis. Not every case, of course, shows such clear-cut homosexual–heterosexual conflicts as this present one, and some psychoses must be due to other conflicts.

The importance of the present case and of our work to treatment is that it points the way to a subtractive therapy, whereas previously (except in the thyroid) only supplementary therapy has been in use. We feel that where there is proved endocrine abnormality similar to that observed in this case the surgeon may be more successful than the physician.

We have to thank Lord Wakefield, without whose generous grants this research work would not have been possible; and also Dr. R. D. Gillespie for so kindly placing his case in our hands and allowing us access to his notes.

Nineteen representatives of local authorities and other organizations co-operating with the Department of Scientific and Industrial Research in investigations into the nature and extent of atmospheric pollution met on June 6 in half-yearly conference at the offices of the Department. The conference learned with interest of measurements which had been made in Scunthorpe by Dr. W. H. Hartston (the medical officer of health) of the amounts of zinc and lead in the matter deposited from the air. Other members who had had previous experience of measurements of zinc, lead, and other metals in the atmospheres of steel-manufacturing and other towns also took part in the discussion. The conference expressed its satisfaction at the welcome which had been given to the Public Health (Coal Mine Refuse) Bill in its recent passage through the House of Commons. Dr. G. M. B. Dobson, F.R.S. (chairman of the Atmospheric Pollution Research Committee) presented a report on the progress of the investigations carried out under the committee. He said that the special survey of atmospheric pollution in and around the City of Leicester had now entered upon its third year, during which special attention would be paid to problems which the previous work of the survey had shown to be important. This had required the establishment of three new observing stations, for the measurement of dust in the air, near the city. Special work on these problems would also be carried on in the laboratory during the year.

SPINAL ANAESTHESIA

A REVIEW OF THE TIME-DIFFUSION METHOD

BY

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It is many years since the first drug was introduced into the human spinal theca with the intention of producing an extensive regional anaesthesia, and, although the prophecy that the old inhalation anaesthesia would soon be entirely replaced by the new method has not been fulfilled, there is no doubt that this spinal anaesthesia has come to occupy a valuable place in the armamentarium of both surgeon and anaesthetist. A great number of drugs and methods for their administration have been tried, but the latter, in this country, have mainly been limited to three: that of Howard Jones, in which the height of anaesthesia depends on dosage; that of Etherington Wilson, depending upon the upward diffusion of a hypobaric solution for varying times; and a technique recently described by Lake, where the hypobaric solution is allowed to flow upwards to a required point determined by correct posturing of the patient. The following account is based on a series of observations in which one drug and one technique were used throughout. The drug was percaine (Ciba) 1 in 1,500 solution in 0.5 per cent. saline, having a specific gravity of 1.0038 at 15.5° C. and generally known in this country as light percaine; and the technique was based upon that of Etherington Wilson, with some modification. It cannot be claimed for this time-diffusion method that absolute accuracy is always obtained, and a small proportion of cases occur in which anaesthesia is unsatisfactory; but it can be claimed that it involves the minimum amount of manipulation of the patient, it is rapid, the technique is simple, it is safe so far as can be judged, and it is attended by the minimum of complications.

Technique

The only apparatus required over and above that necessary for the administration of any spinal anaesthetic is a watch with an easily visible seconds hand. It is important that the fit between the syringe and the lumbar puncture needle should be watertight, and the finer the needle the better.

As light percaine is sensitive to slight changes in *p*H, the instruments used should be dry. A few cubic centimetres of the solution are drawn into a 20-c.cm. syringe, which is swilled out with it, emptied into a receiver, and then refilled with the remainder of the ampoule. The patient is now placed in a sitting position on the operating table, with his arms on his knees—not sitting sideways with his legs dangling over the edge. The skin is cleaned in the usual way and a small wheal raised at the proposed site of injection with the percaine solution, which acts to some extent as a local anaesthetic. This can be done with a hypodermic needle fitted on to the 20-c.cm. syringe. The lumbar puncture needle is then introduced until its point is just inside the spinal canal, a position easily found by withdrawing the needle slowly until the flow of cerebrospinal fluid stops, and then reinserting it a short way. About 5 c.cm. of cerebrospinal fluid is allowed to escape. Without disturbing the lumbar puncture needle the syringe is attached to it, and the percaine injected at the rate of 1 c.cm. per second, so as to avoid turbulence in the spinal canal so far as is possible. Solution at theatre temperature is used; presumably with this slow rate of injection it is at body heat by the time the intrathecal space is reached. Timing is begun when the injection is completed, the needle and syringe being held in the same position for the

whole period; when the required number of seconds have elapsed both are removed simultaneously. It is important to avoid leakage at any stage of the procedure. The patient is immediately placed on his back on the operating table, and the head tilted downwards to an angle of about 20 degrees. By the time the site of operation has been prepared and isolated by towels anaesthesia will be complete and the operation may be begun.

The dose used is 12 c.cm. for adults, down to 7 c.cm. for children of 12, if spinal anaesthesia is thought desirable in such young patients. Using this technique, a larger dose is unnecessary, and a smaller dose gives a higher proportion of unsatisfactory anaesthesia. It is, in fact, possible to perform operations on the upper abdomen and chest with as little as 3 c.cm. by means of a mid-dorsal injection and posturing, but apart from some interesting observations on blood pressure there appears to be no advantage in using these very small doses. The lumbar interspaces used are those between the second and third and the third and fourth vertebrae, and the time between fifteen and thirty seconds.

Results

For some reason an injection between the second and third lumbar vertebrae will not necessarily anaesthetize the sacral and lower lumbar nerves, so for any operation involving their area of distribution the third to fourth lumbar interspace must be used. On the other hand it is, as a rule, impossible with this dose to obtain anaesthesia above the sixth thoracic nerve using an injection between L. 3 and 4, so that for upper abdominal operations the percaine should be administered between L. 2 and 3. A further observation is that the maximum height of anaesthesia appears to be obtained after thirty seconds: patients have been sat up as long as sixty seconds without any increase in its level. Thus, using the maximum dose of 12 c.cm., there seems to be little foundation in fact for one of the criticisms levelled at Wilson's method—that of the danger of diaphragmatic paralysis and medullary involvement.

The following table shows the level of anaesthesia which should be expected with different sites of injection and timing. In this series of cases the level was tested with a towel clip in the mid-axillary line, the figure in column 4 corresponding to the highest insensitive intercostal space. A certain amount of variation appears in individual patients, where anaesthesia may be somewhat higher than intended, except in the case of upper abdominal operations. The timing in column 3 is the number of seconds during which the patient sits up after receiving the full dose.

Dose	Interspace	Time	Level
12 c.cm.	2–3 lumbar	15 seconds	10 thoracic
„	„ „	20 „	8 „
„	„ „	30 „	4 „
„	3–4 „	20 „	11 „
„	„ „	25 „	8 „
„	„ „	30 „	6 „

The maximum obtainable anaesthesia appears to be to the fourth thoracic. Two cases only in this series went higher; in both of these the second and third thoracic were also involved.

A few cases requiring subsequent spinal anaesthetics for various reasons after a lapse of a few days did not react in the same way, and an additional five seconds was necessary to give the same level of anaesthesia as before.

Supplementary Medication

At the beginning of this series premedication consisting of morphine was given half an hour before the operation; but this did not appear to be sufficient, and in more recent cases omnopon and scopolamine have been used. It is true that in a certain number of cases their effect is small, but in the majority this more extensive premedication has been quite satisfactory and has never given rise to anxiety, many patients falling asleep shortly after receiving the anaesthetic. Before coming into the operating theatre the patient's eyes are covered with a light bandage, and the ears may also advantageously be lightly plugged with cotton-wool. Absence of noise in the theatre makes it easier for the patient to sleep, and it may not be out of place here to mention that it is quite unnecessary to rouse the patient at intervals to ask him if it hurts. If it does it will be quite obvious. Fall of blood pressure is inevitable in a successful spinal anaesthesia; it can be partly remedied by the injection of ephedrine, which is given as a routine at or just before the time of anaesthesia. It has never caused any alarm, and the mere fact that the blood pressure has fallen is in itself no indication for the suspension of the operation.

Supplementary general anaesthesia may be necessary in cases where the spinal method is unsatisfactory (vide infra), or it may be desirable in the case of some patients. If this is so, sufficient anaesthetic to make the patient drowsy is, as a rule, all that is necessary, and for this purpose a few minims of chloroform, very slowly given, have proved eminently satisfactory.

Sources of Error

Although the technique is simple it is well worth while paying attention to details, as it is only by so doing that the best regulation of anaesthesia can be obtained. There are four common sources of error. (1) Leakage of fluid at any stage of the proceedings. (2) Failure to keep the vertebral column vertical during the injection and subsequent timing. (Wilson's experiments with coloured fluids in a glass tube demonstrate effectively what happens when the tube is tilted, and this is borne out by clinical observation.) (3) Delay in placing the patient on his back after the lumbar puncture needle and syringe have been removed. (4) Injection in the wrong lumbar interspace: this is not so absurd as it sounds in dealing with stout patients, when the surgeon is confronted with a back innocent of palpable bony points.

It may be of some value here to analyse briefly the various types of unsatisfactory anaesthesia encountered from time to time. In this series of cases failures have been recorded when supplementary general anaesthesia, however light, has been necessary for the successful execution of the operation. These consisted of 4 per cent. of the whole series, the proportion diminishing with increasing experience. They may be divided into three groups.

1. Those where the level of anaesthesia was not high enough and which occurred exclusively in operations on the upper abdomen. This group, which needs no further explanation, comprised 1 per cent. of the cases.

2. Cases in which relaxation is complete but in which the sense of touch is acutely present. A finger on the abdomen is construed as a painful stimulus by these patients. It may be significant that this type of failure is the one in which premedication has had little effect. A few drops of chloroform, sufficient to make the patient drowsy, are the most effective remedy; in many cases it may be discontinued after a few

minutes, the patient remaining asleep during the rest of the operation. This group accounted for 2½ per cent. of the cases, or, if the upper abdomen be excluded, 3 per cent.

3. There is a small proportion of cases—0.5 per cent.—in which, in spite of apparently perfect technique, a spinal anaesthetic has no effect whatever: full sensation is present, there is no relaxation and no fall in blood pressure. In the absence of technical faults one is forced to fall back on the rather unsatisfying explanation of a "rachi-resistant" patient. This small number of cases comprised the only complete failures, and are ones that require supplementary full general anaesthesia.

Complications

The only complication to give any trouble during the performance of the subsequent operation was retching, occurring occasionally in upper abdominal operations, but very rarely otherwise. This phenomenon is most often observed in those patients in whom premedication has had little effect, and may occur at any time during the operation: it is fortunately temporary, and passes off spontaneously in a few moments.

There has been no mortality due to anaesthesia in this series of cases and, barring headache, no other complications that at various times have been attributed to spinal anaesthesia. Headache must not be regarded as the bogy of spinal anaesthesia: it occurs in about 7 per cent. of cases, is not of the intractable variety, and rarely lasts more than twenty-four hours. The incidence of this complication appears to be decreased by allowing cerebrospinal fluid to escape before injecting the percaine.

Summary

The results of observation on a series of cases of spinal anaesthesia administered by the time-diffusion technique are recorded. The series consisted of a total number, up to the time of writing, of 907 cases, in 551 of which dosage, timing, level of anaesthesia, etc., were carefully observed and correlated, and a further 356 cases administered as routine, which were not specially observed but which proved satisfactory.

The drug used throughout was light percaine, with the maximum dose of 12 c.cm. Presumably the results obtained would not hold good for other solutions.

The method appears to have a considerable margin of safety, is rapid, reasonably accurate, and has proved most satisfactory in practice.

The 551 cases were administered over a period of some seventeen months at the Anlaby Road Hospital, Hull, and for permission to publish them I wish to express my thanks to Dr. N. Gebbie, medical officer of health for Hull, to Dr. Tod, superintendent of the hospital, and to Mr. C. H. Corbett, consulting surgeon to the hospital. The remainder of the cases were administered at the Royal Infirmary, Sheffield, and for permission to publish these I wish to express my thanks to Mr. R. St. Leger Brockman, surgeon to the infirmary.

A circular letter from the Ministry of Health to medical officers in charge of venereal disease treatment centres states that under the arrangements being made for the examination and calling up of men liable for service under the Military Training Act, 1939, it may well happen that patients receiving treatment at the centres are affected. As it is most desirable that the treatment should not be interrupted, information regarding each case should be available to the Medical Board undertaking the examination; also details of previous treatment should be made known to the medical officer at the depot where the patient is called up. Each patient affected should therefore be supplied with Form V.15 setting out particulars of his case, and should be instructed to hand it to the medical officer concerned.

PREGNANEDIOL EXCRETION IN THE MENSTRUAL CYCLE

BY

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AND

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The absence of a satisfactory method of determining the functional activity of the human ovary has been a serious obstacle to gynaecologists in the treatment of disorders of the menstrual cycle and of sterility. The difficulty of detecting the small amounts of gonadotrophic hormone and of oestrin excreted in the cycle renders such estimations of little value. In 1936 Venning and Browne isolated from human pregnancy urine the glucuronide of pregnanediol, and showed that its excretion during pregnancy and the menstrual cycle is directly related to corpus luteum hormone secretion in the body. The amount of pregnanediol recovered in the urine was found to be equal to 40 to 45 per cent. of the amount of corpus luteum hormone being secreted, on the basis of the quantity of pregnanediol recovered after injection of progesterone, the corpus luteum hormone. In a study of the excretion of pregnanediol by about twenty healthy women Venning and Browne (1937a, 1937b) found a considerable variation in the output, the range being from 3 to 60 mg.; they also found that variations existed in the excretion in different cycles of the same individual. As a general observation it was noted that where the amount of pregnanediol excreted was low—for example, less than 20 mg. in six days—and where the luteal phase was short, there was a history of functional sterility. No pregnanediol was found during the follicular phase—that is, the proliferative phase in the endometrium—but only during the luteal phase of the cycle—that is, from about two days after ovulation until one to two days before menstruation, covering a period roughly from the twelfth to the twenty-seventh day of the cycle, or a total excretion period of eleven to sixteen days. During the luteal phase, when pregnanediol occurs in the urine, the endometrium is no longer proliferative but secretory. It is thus possible to determine the existence of a functional corpus luteum in two ways: (*a*) by histological examination of endometrial scrapings, and (*b*) by estimation of the excretion of pregnanediol in the urine. In the present investigation the two methods were employed, and the result of each was given independently of the other and without knowledge of the finding obtained or information as to the stage of the cycle.

Methods and Results

The five patients mentioned in this report were suffering from sterility, and it was deemed advisable to estimate the activity of their ovarian luteal tissue as well as to examine the reaction of the uterine endometrium. Estimations of the excretion of pregnanediol will reveal, it is hoped, those cases of sterility and other abnormalities in which progesterone therapy is specifically indicated.

Pregnanediol.—The improved method of extraction of sodium pregnanediol glucuronidate published by Venning in 1938 was used, and the weights of the glucuronidate converted into pregnanediol by the approved formula.

The specimens of urine covered two consecutive days' output, and assays were made throughout two cycles in four patients and one cycle in another patient. An interval of either two or three days elapsed between the collection of each specimen. In no case was pregnanediol found in the urine during the first half of the cycle; the days on which it was recovered in the urine are indicated in the fourth column of Table I, and the amounts for twenty-four hours are shown in Column 2.

TABLE I.—*Pregnanediol in the Menstrual Cycle*

Case No.	Amount of Pregl. in 24 hrs. (mg.)	Estimated Amount Pregl. in Cycle (mg.)	Days on which Pregl. Recovered	Length of Cycle Days	Remarks
P1	4.8, 6.2 } Cycle 1	22 + ? 15 = 37	26, 27; 29, 30	32	Almost normal luteal function
	6.9, 6.2, 6.0 } Cycle 2	38 + ? 22 = 60	23, 24; 26, 27; 30, 31	35	Normal luteal function
P2	5.1, 3.2 } Cycle 1	16.6 + ? 12 = 38	25, 26; 28, 29	29	Excretion too low and luteal phase short
	6.2, 3.3 } Cycle 2	19 + ? 14 = 33	24, 25; 27, 28	30	
P3	3.0, 3.4, 10.5, 2.1 } Cycle 1	38 + ? 22 = 60	17, 18; 21, 22; 24, 25; 28, 29	31	Normal luteal function
	2.2, 3.0 } Cycle 2	Probable loss	15, 16; 25, 26	27	?
P4	Nil Cycle 1; 3.6, 1.5 } Cycle 2	Nil; ?	Nil; 17, 18; 20, 21	28; 24	Deficient ovarian activity
P5	Cycle 1 not done	Not done	Not done	30	?
	3.3, 7.0, 5.5 } Cycle 2	31.6 + ? 15 = 46	19, 20; 23, 24; 26, 27	29	Normal luteal activity

For the purpose of gauging whether the cases investigated fell within the range of normality as given by Venning and Browne—namely, 40 to 60 mg.—an estimated total was arrived at by calculating the likely output on days between specimens. Such figures are preceded by a question mark in Column 3 of Table I, and from the totals thus reached it is possible to put forward the tentative interpretation given in the last column.

Biopsies.—By the aid of a special tubular curette small portions of endometrium were removed (by E. M. R.) from each patient for histological examination at the various stages of the cycle indicated on Chart 1 by an asterisk. The histological findings given in Table II, when correlated with the figures for pregnanediol, are of special interest. In only one case is there any divergence between the histological and excretion findings—namely, in P3 on the twenty-fourth day a pregnanediol output of 10.5 mg. is associated with an endometrial picture which is not secretory. The clinical value of an output of such dimensions is easily recognized in face of the histological report.

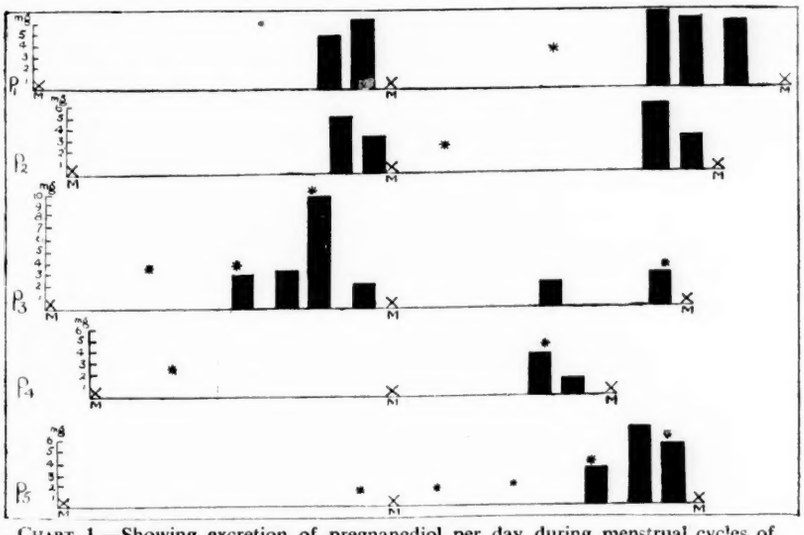

CHART 1.—Showing excretion of pregnanediol per day during menstrual cycles of five women. ×, Menstruation begun. * Endometrial biopsy made.

TABLE II.—*Endometrial Biopsies in the Menstrual Cycle*

Case No.	Stage of Cycle	Histological Report	Phase of Cycle	Pregnanediol Excretion (per diem)
P1	15th day	Well-marked proliferative	Proliferative	Nil
P2	6th day	Not typical of one or other. Early secretory; endometrium thick and profuse	Late menstruating	Nil
P3	10th day	Poor specimen; no report	Proliferative	Nil
	17th ,,	Poor specimen: probably early proliferative	Early secretory	3 mg.
	24th ,,	Late proliferative, stroma and glands	Secretory	10.5 mg.
	26th ,, (2nd cycle)	Secretory	Secretory	3 mg. (Menstruation next day)
P4	8th day	Perfect proliferative phase	Proliferative	Nil
	18th ,, (2nd cycle)	Well-advanced secretory phase. Vessels congested and ruptured, oedema	Secretory	3.6 mg.
P5	28th day (1st cycle)	Well-marked late secretory	Late secretory	Not done
	5th day	Commencing secretory or else menstruation	Menstruation	Nil
	12th ,,	Late proliferative or early secretory	Late proliferative	Nil
	19th ,,	Late proliferative or commencing secretory (definite diagnosis)	Early secretory	3.3 mg.
	26th ,,	Secretory (poor specimen)	Secretory(late)	5.5 mg.

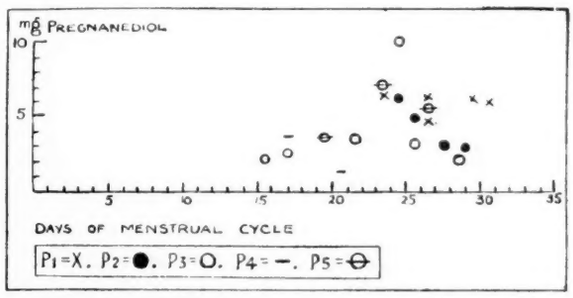

CHART 2.—Showing excretion of pregnanediol plotted against the days of the menstrual cycle.

When the excretion of pregnanediol in the five women investigated is plotted against the days of its occurrence (Chart 2), it is seen that the period covered is from the fifteenth to the thirtieth day of the cycle, the peak being about the twenty-third and twenty-fourth days. In studying individual cases, however, attention must be paid to the length of cycle normal to that person if it is desired to investigate the whole of the luteal phase. The data confirm Venning and Browne's conclusions.

Summary

The excretion of pregnanediol was correlated with endometrial biopsies in five women during the menstrual cycle.

No pregnanediol was excreted during the proliferative phase—that is, the early part of the cycle.

Pregnanediol excretion was found in all cases having a secretory endometrium.

On the basis of Venning and Browne's findings estimates were made as to the normality of ovarian function.

The expenses of this investigation were partly defrayed by a grant (to A. M. H.) from the Moray Fund.

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TREATMENT OF GONORRHOEA BY M & B 693

BY

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In May, 1938, I began to treat a series of cases of gonorrhoea with the preparation which is now known as M & B 693. In this series 152 consecutive cases come under review; from these are excluded thirteen early defaulters and irregular attenders. Failures—cases which showed no material improvement after approximately two to three weeks' administration of the drug—numbered five. It should be noted here, however, that those "failures" cleared rapidly when irrigation was instituted after the drug had been withdrawn. Relapses occurred in eleven cases: six under fourteen days and five between twenty-one and forty-two days, all in alcoholics. Re-exposures numbered five, and the defaulter rate was about 30 per cent.

The following represents the detailed results in 134 cases. I began these investigations by using a dosage of two tablets three times a day. I excluded adjuvant irrigation therapy, as I had had a long-standing suspicion that the high incidence of complications which occurred during treatment at all the Glasgow centres—somewhere in the region of between 30 and 40 per cent.—was due to the act of irrigation, and also because I wished to see what the drug could do unaided. I began, therefore, with a dosage of two tablets thrice daily, later increasing it to two tablets four times daily to obtain a more even concentration during waking hours. Precautions with regard to sulphur intake were emphasized. As the results with two tablets four times a day were more encouraging I was emboldened to try three tablets four times a day; but my first case produced a rash with temperature, and I did not feel justified in proceeding further with this dosage.

Later, to find if a smaller dosage given in the same way would have as much benefit and, I hoped, with lessened toxic effects, I instituted a daily dosage of one tablet four times a day, and until recently this has been my routine treatment. The tablets were given until the discharge had completely ceased, and maintained for a period varying from one to two weeks thereafter. Following this there was a rest from treatment for three or four days, followed by a week's treatment, and then two weeks' rest; after which a prostatic smear was taken, and, if this was satisfactory, a week later a urethroscopic examination was carried out and the urethra dilated, with a subsequent examination and blood Kahn test. Throughout the course of treatment the patients were so far as possible seen daily, but this quite often proved impossible, so that "dry" readings were more numerous than "G.C.-negative" ones. Thus it may safely be assumed that the figures obtained represent periods longer than would be got by exact findings under "indoor" supervision.

Table I shows the results obtained with varying dosage, and the extraordinary fact emerges that one tablet four times a day produced my best results, surpassing those with double that amount.

TABLE I

Dosage	Urethral Smear G.C.-negative		Urethra Dry	
	No. of Cases	Average in Days	No. of Cases	Average in Days
2 tablets 3 times daily.. ..	9	3.33	22	5.73
2 „ 4 „ „	12	3.00	17	3.80
1 tablet 4 „ „	40	1.92	33	3.37
3 tablets 4 „ „	1	2.00		
Total	62	2.33	72	4.19

Thus it will be seen that sixty-two cases were gonococcus-negative in an average of 2.33 days, and if we read "dry" as "G.C.-negative" we get an average of 3.33 days for the total 134 cases.

As cases may be gonococcus-negative but not dry I have extracted my total "dry" observations.

105 cases were dry in 7 days or under, averaging 4.21
16 „ „ „ 14 „ „ „ 10.7
5 „ „ „ 21 „ „ „ 16.9
1 case was dry in 26 days.

Taking detailed dosage the following results were got:

29 cases with 2 tablets thrice daily were dry in average 7.2 days
29 „ „ „ four times daily, „ „ „ 5.62 „
69 „ „ 1 tablet „ „ „ „ „ „ 4.86 „

The remaining seven cases were gonococcus-negative but not dry before defaulting.

Complications.—No complications were encountered during treatment, and where complications were noted before treatment these cleared up rapidly.

Intolerance.—This was observed in fifty-two cases, or approximately 39 per cent. Table II reveals the frequency of each toxic symptom noted and its average time incidence in days. In some cases more than one symptom occurred.

TABLE II.—*Intolerance*

Symptom	No. of Cases	Average Day Incidence
Vomiting	3	3.5
Nausea	30	3.7
Headache	26	4.0
Vertigo	6	4.3
Migraine	1	5.0
Temperature	5	6.2
Rash	3	6.6
Constipation	2	7.0

No case of breathlessness or cyanosis was found. With the dosage of one tablet four times a day the symptoms

of headache and nausea only were observed. All the cases of rash and temperature occurred with the larger doses.

In view of the suggestions and observations with regard to the delayed method of treatment, I have extracted my findings on seventy-three cases with the same dosage—namely, one tablet four times a day. I have followed the method adopted by Cokkinis and McElligott, and although my numbers are small they at least give some guidance. From Table III it is evident that there is no material difference between early and late treatment.

TABLE III

Duration of Disease before Treatment (Days)	No. of Cases	G.C.-neg. (Days)	Dry (Days)
1–3	21	1.9	4.65
4–5	4	3.25	6.5
6–7	17	1.63	5.41
8–10	6	3	5.16
11–14	8	2.8	6.5
14–21	11	2	4.3
Over 21	6	2.33	2.62

From those cases in which it was possible to obtain an accurate estimation of the incubation period I have extracted Table IV; it would seem that the duration of this period has apparently no effect on the action of the drug.

TABLE IV

Incubation Period in Days	No. of Cases	G.C.-neg. (Days)	Dry (Days)
1–3	24	1.63	4.87
4–5	13	2	3.9
6–7	18	2.54	5.22
8–10	3	3	6.3
Over 10	5	2.5	5.4

Conclusions

M & B 693 is an exceedingly potent remedy for gonorrhoea, if not the most potent yet obtained, giving in this series 90 per cent. apparent early cures.

It is equally effective in early and late cases, and therefore delay in starting treatment, with its potential subsequent onset of complications, can be avoided.

Moderate dosage—namely, one tablet four times a day—would seem to give better results than greater doses. Intolerance under these circumstances, therefore, is almost negligible.

The high incidence of complications obtaining during treatment under the old irrigation therapy has been completely abolished.

Summary

152 cases of gonorrhoea under treatment with M & B 693 are reviewed. Thirteen of these patients defaulted or attended irregularly, and five failed to respond to the drug.

Of the remaining 134 cases eleven relapsed, due to alcohol in all instances.

Early cure was obtained in 90 per cent. of cases. This cure was possible in, on an average, under five days.

Apparent failures cleared up quickly with subsequent irrigation.

Toxic effects occurred in 39 per cent. of cases, and these were generally slight.

No complications during treatment were encountered.

Additional Note

Since these cases were reviewed I have altered my technique in an effort to overcome the incidence of failures, and still maintain freedom from complications. New cases have been given M & B 693 tablets with a daily dosage of one tablet four times a day for one week only, followed by daily irrigation with 1 in 8,000 potassium permanganate for one week, and then lavage on alternate days for another week. So far, in fully fifty cases this method has met with complete success, there being no failures and no complications during treatment. I hope at some future date to review these results fully.

My thanks are due to Messrs. May and Baker for original supplies of the drug, and especially to Dr. R. Forgan for suggestions as to dosage in the early part of my investigations. I am also indebted to my colleagues Drs. A. D. MacLachlan and Albert Sharman for their help and ready compliance with my suggestions, and to the clinic attendants for the increased work which they undertook with enthusiasm.

VACCINIAL ENCEPHALITIS IN A CHILD AGED 14 WEEKS

BY

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AND

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The points of special interest in this case seem to be the mildness of the disease, its onset on the tenth day after vaccination, its simulation (before admission to hospital) of many common childish ailments (except for torticollis), and the otherwise apparently normal progress after vaccination.

Vaccinial encephalitis is generally considered a complication of vaccination in older children and adolescents. Hewlett (1933) states that the young infant seems to be wholly immune from this complication. J. F. M. Scott (1932), who has collected twenty-two cases in the first year of life, illustrates the rarity of vaccinial encephalitis at this age by the following figures. Out of a total of 569 cases collected from different parts of Europe only forty-one (7.2 per cent.) occurred under 1 year. Gunnar Olin (1938) states that little or no risk accompanies vaccination under the age of 1 year: he computes the incidence of post-vaccinial encephalitis in Sweden from 1924 to 1936 as 1 in 30,246 of infants primarily vaccinated during the first year of life.

Case Report

The patient was a female, aged 14 weeks on admission, the first child of healthy parents. It had been breast-fed from birth, and the only previous illness was a heavy cold lasting a few days when 3 weeks old. There was no family history of tuberculosis. The father had never been vaccinated, and the mother was vaccinated as a child. The following is a chronological account of the illness.

On February 25, 1939, the child, then aged 13 weeks, was vaccinated with calf lymph—two marks on the left arm. This resulted in normal vesicles on March 2, and normal pustules

on March 6. On the 7th she vomited in the evening. Castor oil was given, and she slept till morning. The bowels acted in the morning of the 8th. The mother stated that the child had a peculiar cry, and held her head to the left side. The child slept all day. On examination in the evening she appeared drowsy, resented being disturbed or placed on the right side, and did not recognize her mother or smile. She fed well, however. The head was held turned to the left, and she seemed to resent it being straightened. There was no rise of temperature, and no external cause was found for the torticollis. No enlarged glands were seen, the tympanic membranes were normal, and there was no strabismus, nystagmus, neck rigidity, or Kernig's sign.

On March 9 the child was admitted to hospital. It was conscious, but seemed very quiet. There were two black scars on the left arm, due to vaccination; these were not surrounded by any inflammatory zone, and no enlarged lymphatic glands were palpable in any part of the body. The fundi were normal and the pupils reacted normally to light. The head and eyes were directed to the left, and there was a weakness of the left lower face, causing a drooping of the corner of the mouth. The movements of the limbs appeared normal. The knee-jerks were present and equal, but the ankle-jerks were not obtained. The plantar reflexes were extensor and equal on the two sides. There was a slightly positive Kernig's sign and a suspicion of neck rigidity. The tympanic membranes were normal, and nothing abnormal was discovered in the throat, heart, lungs, or abdomen. Lumbar puncture was performed, and showed a clear fluid under moderate pressure. The pathological report on the fluid was: cells (lymphocytes), 60 per c.mm.; globulin, slight excess; protein, 0.06 per cent.; chlorides, 710 mg. per 100 c.cm.; sugar, low (the fluid had been kept overnight before examination); culture, no growth; Wassermann reaction, negative; Lange test, 0012321000.

On March 10 a temperature of 99.5° was recorded, but the physical signs remained unchanged. Treatment consisted of 10 c.cm. whole blood intramuscularly from the mother and 10 c.cm. whole blood from an adult vaccinated seven years previously. On the 11th, in addition to the signs previously noted, there was a right sixth cranial nerve paralysis, and on upward movement of the eyes a coarse lateral nystagmus occurred. The movements of the left upper limb seemed weak, the muscles especially affected being the deltoid, flexors of the arm, and extensors of the wrist. The arm was held motionless. Five c.cm. of serum was given intramuscularly (serum from an adult vaccinated four weeks previously from the same batch of lymph). The next day the signs were unchanged, and 7.5 c.cm. of serum was given. On the 13th the general condition seemed better. The sixth cranial nerve palsy was not so marked and movement of the arm had improved. Five c.cm. of serum was given.

Weakness of the left face had disappeared on March 14, but some weakness of the right side of the face seemed to be developing. Movement of the fingers of the left hand was present, but the arm was held immobile by the side unless stimulated. Kernig's sign was positive, and some neck rigidity was present. Five c.cm. of serum was given. By March 16 the squint and paresis of the left arm had recovered. There were no focal signs, but the neck rigidity and Kernig's sign were still present.

On March 22 the temperature, which had been running between 98° and 99°, rose to 100.6°. The general condition seemed good, but the neck rigidity and Kernig's sign, which had nearly disappeared, returned. Lumbar puncture showed a clear fluid under moderate pressure. It contained fifty-four cells per c.mm. and 0.04 per cent. of protein, but no excess of globulin. No growth was found on culture and there were no tubercle bacilli. On the 28th no neck rigidity was present, but Kernig's sign was still slightly positive. The child had begun to cry and to behave more normally. Lumbar puncture showed fluid under normal pressure. Examination showed: cells (lymphocytes), 6 per c.mm.; protein, 0.02 per cent.; globulin, no excess; chlorides, 710 mg. per 100 c.cm.; deposit, no tubercle bacilli; culture, no growth; Lange test, no reduction.

On April 1 no abnormal physical signs were observed, and the patient was discharged from hospital.

The serum used was obtained from a youth aged 17, who had been vaccinated four weeks previously with lymph from the same batch as that employed in vaccinating the patient.

We wish to express our thanks to Dr. Jeffreys, under whom the patient was in hospital, for permission to publish this case; to the medical officer of health and the Public Health Department of Southampton for tracing with such dispatch an adult vaccinated with lymph from the same batch as that used for the patient; to Dr. Gleave, pathologist to the Royal South Hants and Southampton Hospital, for the pathological reports and for the preparation of the serum; and to the donor who so readily gave his blood for the serum.

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Clinical Memoranda

A Case of Injury to the Pancreas

An intra-abdominal injury affecting the pancreas alone is a rare occurrence, and seems to warrant the publication of this case.

CASE HISTORY

A carter aged 48 was standing behind his van when a lorry reversed into him, crushing him against the tailboard of the van. When released he collapsed, and was immediately taken to hospital. On admission he was pale, sweating, and severely shocked, with an almost imperceptible pulse. He complained of abdominal pain and was tender on deep palpation in the epigastrium and right flank. His condition improved rapidly, and six hours later his colour was good, his pulse was 78 and of good volume, and he felt much better. He still complained of some upper abdominal pain and was tender in the epigastrium and right hypochondrium, but there was no marked abdominal rigidity and no dullness in either flank. For the next twenty-four hours there was little change in his condition. After this time, however, his pain became more severe, he vomited several times, and his pulse rate began to rise steadily. Six hours later, just thirty-six hours after admission, his pulse had risen to 120, he had developed generalized abdominal rigidity with tenderness most pronounced in the upper abdomen, and he looked drawn and anxious. Laparotomy was decided upon, the diagnosis being ? rupture of small intestine in the region of the duodeno-jejunal junction.

Under spinal anaesthesia his abdomen was opened through an upper right paramedian incision. The peritoneal cavity was found full of blood-stained fluid, with areas of fat necrosis scattered everywhere. Some of these areas in the great omentum were an inch in diameter. The peritoneum over the pancreas was oedematous and the pancreas itself appeared dark and swollen, but no actual tear in the peritoneum could be found. No evidence of trauma to the intestines, stomach, spleen, or liver was seen. Two drainage tubes down to the pancreas—an upper between the stomach and transverse colon and through the lesser sac, and a lower below the transverse colon—were inserted in the wound and a third placed in the pelvis through a suprapubic stab wound. The incision was closed throughout with interrupted sutures, with tension sutures of thick silk through the rectus sheath, to minimize the danger of subsequent bursting of the wound. The patient's condition remained good throughout the operation. When the abdomen

had been opened Loewi's mydriatic test, performed by the anaesthetist, proved negative.

Forty-eight hours after operation the patient vomited several times, and, by means of a Ryall's tube, 18 oz. of heavily bile-stained fluid were aspirated from the stomach. This tube was left *in situ* for twenty-four hours, the stomach being washed out every six hours. There was no further vomiting, and thereafter the patient's general condition progressed satisfactorily.

For twenty-four hours after operation there was a copious discharge from all the drainage tubes; subsequently this decreased steadily and the tubes were shortened daily, being taken away on the seventh day after operation. When these were removed only a slight discharge occurred from the site of the upper tube, but this increased in amount until fourteen days after operation there was a continuous discharge of clear pancreatic juice from a sinus in the centre of the wound. The skin of the abdominal wall, which had been painted daily with Whitehead's varnish, became very red but did not break down. This sinus continued to discharge freely, and the condition of the skin was a source of anxiety. Daily painting with Whitehead's varnish was supplemented by the liberal application of an ointment of 1 per cent. acetic acid in lanolin every four hours, actual digestion of the skin being prevented. About sixty days after operation the discharge started to decrease in amount, and seventy-five days after operation the sinus had closed completely and the wound was soundly healed. During the latter part of this time the patient felt well, ate heartily, and was getting about.

The diastatic index in this case was 20 units three days after operation, and 30 units thirty-five days after operation. The estimated fat in the faeces was 38 per cent. fifteen days after operation and 44 per cent. thirty-five days after operation.

Five months after operation the patient was in good general health; he was 5 lb. heavier than before his accident, and his wound remained soundly healed. His urinary diastatic index was then 15 units, and the estimated fat in the faeces was 23 per cent.

In this case a condition essentially similar to acute pancreatitis was produced by an intra-abdominal injury. There was an interval of thirty hours between the injury and the onset of the symptoms of peritonitis. Following operation a pancreatic fistula developed, which closed spontaneously seventy-five days later. While this fistula persisted close attention was necessary to prevent digestion of the skin of the abdominal wall.

London. J. ROWAN ARMSTRONG, F.R.C.S.

Pyocele of the Canal of Nuck

The following may be of interest, as no reference to such a condition can be found in any of the textbooks at our disposal.

An Indian girl aged 4 was admitted to hospital on March 12, 1939, with a swelling of several months' duration in the anterior part of the right labium majus extending upwards into the inguinal canal. A diagnosis was made of anterior labial hernia or hydrocele of the canal of Nuck. Cough impulse or its absence could not be elicited because of non-co-operation on the part of the child. At operation a condition of pyocele was found, the pus being streptococcal, and we described the condition as pyocele of the canal of Nuck. The sac, complete with purulent contents, was removed.

We have not heard or read of such a condition, and consider that it must be exceedingly rare, especially in so young a child; but perhaps some of the readers of the *Journal* may recall a similar case.

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Reviews

ADVANCES IN THERAPEUTICS

The 1938 Year Book of General Therapeutics. Edited by Bernard Fantus, M.S., M.D., and Aaron L. Goldberg, M.D. (Pp. 544; 44 figures. 2.50 dollars; 10s. 6d., postage 6d.) Chicago: Year Book Publishers; London: H. K. Lewis. 1939.

The 1938 *Year Book of General Therapeutics*, edited by B. Fantus and A. L. Goldberg, is an admirable guide for the practitioner, and its usefulness is enhanced by a concise review from the pen of Dr. Fantus emphasizing the principal lines of advance. Not unnaturally considerable space is allotted to sulphanilamide and its derivatives, since the discovery of these is the most striking advance in chemotherapy during the last decade. The editor sums up in favour of the view that this drug, like quinine, the arsenicals, and the mercurials, does not eradicate infection by direct action but requires the co-operation of some as yet undetermined vital reaction on the part of the tissues. It may be recalled, however, that some observers do not share this view and look upon sulphanilamide as injuriously influencing the metabolism of the infecting organism. But as some of these authorities admit that the drug has an indirect influence on the environment of the invader, the gap between the two hypotheses does not appear to be very wide and may be made still narrower by further research.

The insulin or metrazol "shock" methods of treatment of psychoses are carefully considered along with therapy by pyrexia or prolonged sleep, whereby a new and more hopeful era in psychiatry seems to be dawning. The biochemistry of sex hormones and vitamins has gained notably in accuracy and definition, particularly where synthetic products are available. It is plaintively remarked that "unfortunately the vitamins have largely become the most extensively used as well as the most expensive placebos of modern times." Nevertheless it is admitted that the recognition and relief of subvitaminoses have been important, and full credit is given to the value of the anti-pellagrous effect of nicotinic acid, and of the apparent utility of tocopherol (vitamin E). The knowledge of the therapeutic application of venoms is also becoming more precise and therefore more hopeful. Important progress is recorded in anaesthetics, whether administered intravenously, by inhalation, locally, or rectally.

An interesting section is devoted to drugs acting on the autonomic nervous system. That cholinesters and adrenaline-like substances are liberated at the appropriate nerve endings was a generalization of profound significance. This has now been amplified by the recognition of specific enzymes which, by destroying these activating substances, account for the transient nature of their influence. Apparently the prolonging effect of eserine and ephedrine respectively is due to "substrate competition," the enzymes being used up in the destruction of these other bodies.

Finally, there is a discussion of the therapeutic uses of benzedrine and its limitations. In addition to its more recognized uses, benzedrine is helpful in narcolepsy, and perhaps in post-encephalitic Parkinsonism. Its possible use in obesity and sea-sickness is an interesting new development. Though when inhaled it may relieve the symptoms, it apparently does not shorten the duration of a cold.

Never was the reproach that therapeutics are in a static condition less applicable than to-day. Of this the handbook before us provides ample evidence.

BACTERIAL METABOLISM

Bacterial Metabolism. By Marjory Stephenson, Sc.D. Second edition. (Pp. 391; illustrated. 21s. net.) London: Longmans, Green and Co. 1939.

Thirty years ago Hopkins was defending the use of mice as convenient little test tubes for the study of metabolism. Of recent years it has been realized that micro-organisms may be even more convenient owing to their rapid metabolism and short life period. This has been the case, in particular, in the studies of food requirements and of the metabolism of carbohydrates, which has proved to be closely related to the function of the water-soluble vitamins. The growth of *Staph. aureus* requires nicotinic acid, one of the food factors required to prevent pellagra. Nicotinic acid in combination with adenylic acid acts as a carrier of oxygen from oxidized flavoprotein (containing vitamin B_2) to hexosephosphate. *H. influenzae* is more exacting than either *Staph. aureus* or man, as it cannot use nicotinic acid and adenylic acid when these are supplied uncombined. Vitamin B_1 (aneurin) is phosphorylated by yeast to form co-carboxylase, the presence of which is necessary for the oxidation of pyruvic acid by *Staph. aureus.*

Dr. Stephenson deals very fully with these aspects of bacterial metabolism in the new edition of her book. It may be suggested, however, that the details might have been better co-ordinated. For example, to what extent can phosphorylation be considered an invariable first step in the metabolism of hexoses? Oxidation-reduction potential and the use of redox indicators are clearly expounded in the chapter on respiration. The bacterial decomposition of proteins, nitrogen fixation, and enzyme variation are dealt with fully. The composition of bacterial polysaccharides is allotted two pages only; it might have been better if, in this short space, the composition of the pneumococcal polysaccharides, which are quoted as examples, had been described more fully, and if some examples had been given of dissimilar polysaccharides, such as that of *B. dysenteriae* (Shiga); also if the complex antigens containing polysaccharides had been mentioned. Certain phenomena which the bacteriologist meets with in routine work might have been explained. Why, for example, does *Bact. coli* form acid and gas from glucose, while *Bact. typhosum* forms acid only? In places it is assumed that the reader has a knowledge beyond that of many who would be interested in this subject. For example, the symbol Qo_2 is used without, apparently, any explanation of its meaning.

NEW WORK IN PHYSIOLOGY

Annual Review of Physiology. Volume I. Edited by James Murray Luck. Associate Editor, Victor E. Hall. (Pp. 705. 5 dollars.) California: Annual Reviews Incorporated, Stanford University. 1939.

The misgivings expressed by the editorial board of this new annual on introducing it "to a world already burdened with scientific publications" will be fully appreciated by most physiologists, but on glancing through its contents they will feel some compensatory satisfaction in admitting, with the editors, that it will probably fill a useful place. In fact, some such production is indubitably needed from the very abundance, coupled with the qualitative unevenness, of contemporary literature in physiology and related subjects. The workers and teachers in this field must range over various more or less cognate fields of investigation if they are to keep the knowledge of their own subject reasonably up to date. This they can to some extent do by means of such publications as the new *British Chemical and Physiological Abstracts,* the 1938 volume of which, in the physiological section, runs to 1,066 double-column pages, with a nippy little index of 973 pages that includes pure chemistry. We have, too, the valuable *Physiological Reviews,* published also by the American Physiological Society, which provides review articles by specialists in various spheres of contemporary interest. Neither of these publications, however, enables the teacher to obtain an idea of the advances in the various branches of the subject, nor the investigator readily to acquaint himself with branches other than his own. On the whole, the present volume does definitely assist in these directions. It contains twenty-four separate articles, each by a specialist in the branch concerned. It is important, if the book is to prove useful, that reviewers should not address themselves to the experts in their own field, but should have the courage to "write down" to other physiologists of average general knowledge. The really expert already know the field, and could never be satisfied with a brief survey, especially if their views were coloured by considerations of a personal nature, and any attempt at completeness from the expert angle would render nugatory the intention to assist the more general reader. Such reviews as the one on "General and Local Anaesthesia," for instance, would be much better placed in *Physiological Reviews,* and the same is possibly true of the articles on "Physiological Aspects of Genetics," "Developmental Physiology," and "Bio-electric Studies of the Excitation and Response of Nerve." All of these would be more valuable in another type of publication. A section on pharmacology, and one on the central nervous system in general, would have been useful additions. Some of the reviews contain more than 400 references, and one wonders again whether such detail is really necessary; but perhaps it is better to have erred in this direction than in the opposite one.

It is hoped that these observations will be regarded as friendly opinion, and that they will not be thought to outweigh a feeling of indebtedness to the editors for their really welcome efforts.

THE BRACHIAL PLEXUS

The Morphology of the Brachial Plexus. With a Note on the Pectoral Muscle and its Tendon Twist. By Wilfred Harris, M.D., F.R.C.P. (Pp. 117; 87 figures. 25s. net.) London: Oxford University Press. 1939.

Dr. Wilfred Harris's book is a record of original research which clearly demonstrates the value of comparative anatomy as an aid to understanding certain facts which otherwise appear anomalous. The comparative method gives additional interest to the detailed study of nerve distribution and muscular structure, and it provides a firm basis from which general conclusions may be safely drawn. For instance, it will be seen how the nerves and muscles of the upper limb are influenced by such varying habits as swimming, running, flying, or climbing. It will also be evident how, in some cases, structural changes, which have been induced by special habits in the progenitors, are retained in certain species living in the present epoch, notwithstanding changes in habit and environment; while in others in response to altered habits there have been adaptive changes in structure. Dr. Harris discusses many points of interest in the composition of the brachial plexus, more particularly the primary division and distribution of the ventral and dorsal branches of the spinal nerves which supply the embryonic limb bud, and the absence of communications between the ventral and the dorsal nerves. An explanation of the apparent exceptions to this rule is afforded by the inclusion, for example, of a

dorsal branch in a ventral nerve, the dorsal branch entering the ventral nerve high up near its origin and coursing with it for a certain distance, but later leaving it to regain the primary dorsal position, as in the case of the dorsal cutaneous branch, which leaves the main ulnar nerve and is distributed to the dorsal aspect of the hand and fingers. Further, the primary distribution of dorsal nerves to extensor muscles and ventral nerves to flexor muscles, although sometimes obscured by rotation of the limb or other causes, still serves as a valuable guide to the morphology of particular muscles.

The scope of the work ranges from amphibia to primates and includes widely different types of animal, some of which are simple and primitive, while others are highly specialized. The author shows the influence on the brachial plexus of certain structural conditions, such as excessive length or shortness of the neck, and the position of the ribs relative to the plexus. He indicates also the influence of habit on the greater pectoral muscle, as evidenced by the relative degree of development of the three parts of this muscle following the use of the upper limb for climbing or merely for movements of progression on land. Dr. Harris's investigations include not only dissections of the brachial plexus and pectoral muscles of the well-known standard types of vertebrate animal, but also of the recently imported giant panda (January, 1939), which has been the subject of so much speculation, especially with regard to its footprints in the snow and its peculiar diet of bamboo shoots.

MECHANISM OF THOUGHT

The Mechanism of Thought, Imagery, and Hallucination. By Joshua Rosett. (Pp. 289; 12 figures. 15s. net.) London: Oxford University Press; New York: Columbia University Press. 1939.

After a historical introduction the author discusses the paradox that during anaesthesia the higher functions of thought, imagery, and hallucination persist longer than the perception of sensation, in apparent contradistinction to Jackson's law of evolution and dissolution of the nervous system, but he thinks that a lowering of sensory reception is a condition for the initiation of mental activity. He then deals at some length with emotions which are concerned with vividness of experience and their relation to consciousness, which is concerned with relationship of experiences, arriving at the conclusion that a conception of a situation is gained by correlating the impressions experienced in the present with memories of similar and dissimilar impressions—will being activity conditioned by such conceptions. He holds that thought, imagery, and hallucination, in the order mentioned, are conditioned by an increasing degree of inactivity of the sensory receptive apparatus, and therefore by increasing disorientation in the present and relatively immediate surroundings. Thought is relatively accurate but vague as to such things as outline and colour, while hallucination at the other end of the series is inaccurate but vivid in these elements of outline and colour. This thesis is developed by a study of hallucinations in certain injuries and diseases of the nervous system, the epileptic seizure, the state of attention, and sleep.

The chapter on sleep is interesting, and the author shows how in going to sleep sensory impression is first diminished: then, by the consequent disorientation of impressions of the present, thought gives place to images which gain in vividness what they lose in accuracy. Then these images, by a further process of disorientation in both present and past relationships, give place to hallucinations or dreams, which may be extremely vivid but totally inaccurate. When the subject is entirely disoriented both in present and past by the cessation of function of association areas of the cortex he becomes wholly unconscious, though incoordinated movement may still be exhibited. These are next inhibited and the subject becomes decerebrate and then purely vegetative. The reverse process may be observed in the course of wakening. The use of representation and symbolism and their relation to delusion are discussed in the book, as are the effects of various sorts of drugs in producing sleep.

This is an interesting presentation, and for such a theme reasonably clear, but as is inevitable in a comparatively short argument such loose statements as "the cortex is a storehouse of memories" occur. The author may be quite clear as to what he means by this, but the casual reader might be seriously misled.

Notes on Books

The first volume of the second series of the *New International Clinics*, edited by Dr. GEORGE MORRIS PIERSOL (J. B. Lippincott Company, 50s. net per set of four volumes), contains fifteen original contributions; a clinical account of a growth resembling a superior sulcus tumour with successful surgical removal, by Eldridge L. Eliason and J. Roderick Kitchell; a clinico-pathological conference on lymphosarcoma of the stomach, by Thomas A. Johnson, W. E. Lee, M. S. Hwang, and E. A. Case; and a review of recent progress on water balance, oedema, and dehydration, by A. Cantarow. Of the original articles attention may be drawn to those on chronic brucellosis, by A. Park McGinty and W. Elizabeth Gambrell; on carcinoma of the thoracic oesophagus, with a record of six cases, by John H. Garlock; on the clinical significance of gastro-intestinal haemorrhage, by Julius Friedenwald and Samuel Morrison; on the differential diagnosis and treatment of diabetes mellitus, with discussion of the protamine paradox, by Harold Bowcock; an outline of electrocardiography, by Richard Ashman; and a paper on mixed vaccinations (diphtheria–tetanus, typhoid–paratyphoid–diphtheria, typhoid–paratyphoid–tetanus, and typhoid–paratyphoid–diphtheria–tetanus), by G. Ramon of the Paris Pasteur Institute.

The author of *The Climate of Madeira*, Vice-Admiral H. C. DE LACERDA CASTELO BRANCO, sailor, hydrographer, and meteorologist, has written this small book, as he states in his introduction, primarily for doctors. It is a thorough and painstaking analysis of every factor in the island's climate, plentifully provided with tables and graphs. Favourable comparisons are drawn with several other climatic stations in Portugal, the Riviera, and elsewhere. Some medical notes are appended, wherein it is suggested that the so-called Madeira fever, familiar to many English visitors, is simply the result of imprudent indulgence in luscious fruits and excessive sun-bathing. The book, illustrated with some good photographs, is translated from the French by Dr. Alberto Figueira Jardim, who, despite this evidence of linguistic ability, might have employed with advantage an English collaborator.

Fundamental Principles of Bacteriology, by A. J. SALLE (McGraw Hill, 24s.), justifies its title mainly by dealing thoroughly with the chemistry of bacterial metabolism. Its latter half is nevertheless devoted to applied aspects, including the bacteriology of water, soil, air, foods, and plant diseases. Medical bacteriology is allotted only two chapters, of which one is on infection and immunity, and contains several gross errors (such as the statement on page 569 that anti-bacterial sera are "ineffectual and of minor importance therapeutically"); the other is little more than a list of species taken from Bergey's Manual, some of which are no longer recognized as having the

status or pathogenic powers here credited to them. The book is therefore unsuitable for medical students. Its detailed instructions for practical work are a novel and useful feature.

The third edition of *A Handbook of Ophthalmology*, by HUMPHREY NEAME and F. A. WILLIAMSON-NOBLE (London: J. and A. Churchill, 13s. 6d.), is an excellent piece of work. There is a new chapter on tropical ophthalmology by Lieutenant-Colonel Harold Williamson and Lieutenant-Colonel E. W. O'G. Kirwan. This is a most entertaining and lively section, which outlines the tropical aspects of disorders of the eye more effectively than many longer productions. Special notice has been given to the use of contact lenses for such disorders as conical cornea and high errors of refraction, and mention is made of a new and potent mydriatic solution for subconjunctival injection. There is also a new section on the value of vitamins in the treatment of diseases of the eye. This handbook is easy to read, and should prove attractive and informative both to the student and to the general practitioner.

To the medical man who reads Dr. WILLIAM H. FELDMAN'S comprehensive monograph *Avian Tuberculosis Infections* (Baillière, Tindall and Cox, 31s. 6d.) the extent to which the avian tubercle bacillus is responsible for disease in the animal world will come as a surprise. This well-produced, amply illustrated volume with its large number of references will undoubtedly (to quote the writer of the foreword) "serve as a reference book to the specialist in the field, be a source of new knowledge to those primarily interested in related subjects, and stimulate the student and the investigator." The tuberculosis specialist will be particularly interested in the chapter in which Dr. Feldman discusses the pathogenicity of avian tubercle bacilli for human beings. Of the thirty-seven reported cases, exclusive of cases of Hodgkin's disease, in which infection due to the avian tubercle bacillus was claimed or presumed to be present in human beings, an analysis of the recorded data, obtained by reviewing the reports as originally published, indicates that in the majority a diagnosis of avian tubercle bacillus infection was questionable or erroneous. In thirteen cases, however, such a diagnosis could be assumed with reasonable certainty. In view of the numerous opportunities for infection it must therefore be concluded that human beings have a formidable resistance to this particular type of tubercle bacillus.

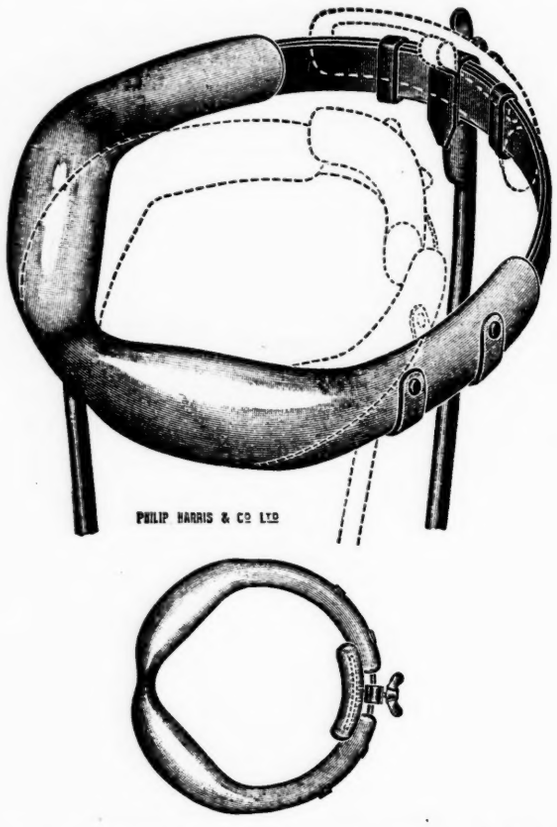
Preparations and Appliances

ADJUSTABLE THOMAS SPLINT

Mr. D. G. DUFF, *M.C.*, F.R.C.S.Ed., writes from the Denbighshire Infirmary:

The Thomas splint, admittedly one of the foremost appliances in our surgical armamentarium, has abundantly proved its value in the prevention of shock. There can be little doubt, however, that it is not used as widely as it should be, often because of difficulty in getting the required size to fit the patient. Too often the correct size is not to hand and the ring does not fit accurately; the counterforce is not taken on the ischial tuberosity alone. Adjustable rings have been devised, but they may be complicated to apply, not sufficiently robust, or liable to get out of position.

Messrs. Philip Harris and Co. of Birmingham have made for me a Thomas splint with an adjustable ring which gives all gradations of size between 15 inches and 26 inches internal measurements. It can be opened to pass over boots or bulky dressings, and quickly springs into position with a well-padded and stable cushion against the ischial tuberosity. It is then locked by a thumb-screw and gives a support strong enough to take the weight of the body, as required in a calliper. The splint is made a standard length of 39 inches to allow for the longest leg. The ring is made of two flat steel half-hoops, which, anchored at their inner ends, slide over each other in a guide above the external iron, where they can be fixed in any position by the thumb-screw. Cushion contours were worked out from plaster casts of the thigh, and, being founded on metal cylinders inside the padding, their essential shape will not be lost in prolonged use. There are bare areas necessarily uncovered in the largest positions, but as they are kept



well clear of the skin they require no cushioning. It is hoped that this splint will prove economically worth while not only in first-aid work—one being carried in each casualty ambulance—but also in allowing a minimum stock at hospitals, with the certainty of accurate fitting for each patient. Saving time and discomfort to the patient in finding the correct size of splint should also be an advantage.

FUNGICIDE JELLY

"Mersagel" (Glaxo Laboratories Ltd.) is a water-soluble jelly which contains 1 in 750 of phenyl mercuric acetate. This substance is a very powerful fungicide. The preparation is recommended for the treatment of fungoid skin infections, such as athlete's foot, dhobie's itch, etc.

ACRIFLAVINE JELLY

"Flavogel" (Glaxo Laboratories Ltd.) is a water-soluble jelly which contains 1 in 1,000 acriflavine. It provides a painless antiseptic dressing for wounds and abrasions and has the advantage of being portable.

ANALEPTIC COMPOUND

"Cycliton" (Roche Products Ltd.) is the diethylamide of 3:5-dimethylisoxazol-4-carboxylic acid. It is recommended as a respiratory and circulatory stimulant. The compound has been proved by pharmacological tests to be an efficient analeptic, and the clinical reports are favourable. The compound can be administered either orally or by injection. For the latter purpose it is supplied in rubber-capped phials of a convenient and new pattern.

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TUBERCULIN TESTS IN CATTLE

During the first thirty years or so of this century attempts to control bovine tuberculosis in Great Britain were based mainly on the detection of diseased animals by clinical examination and by bacteriological examination of their milk. In spite of the considerable sum of money spent in these examinations and in compensating farmers for condemned animals, little or no progress was made towards diminishing the total amount of tuberculous infection in cattle. It became clear that clinical examination could not be relied on to detect all diseased animals, and that bacteriological examination of the milk by guinea-pig inoculation, though in itself reliable, was too slow to be of much value in controlling the spread of infection from diseased to healthy animals. An alternative method of attack lay in detecting all infected animals, whether diseased or not, by means of the tuberculin test, eliminating all positive reactors, and breeding only from healthy animals. A scheme of this sort was introduced by the Ministry of Health in 1923, mainly with a view to providing tubercle-free milk for human consumption, but the number of producers who took advantage of it was very limited, and the members of the general public who were prepared to pay extra for the tuberculin-tested milk so produced were likewise too few to hold out any promise of its success. Any small hope that might have been entertained soon disappeared when it was found that milk of this type, though free from the risk of spreading tuberculosis, was nevertheless often infected with *Brucella abortus* and was capable of giving rise to undulant fever in man. Intensive study of the milk problem rendered it clear to the public health authorities that the only satisfactory way of supplying safe milk to the human population at a reasonable price was to submit it to some form of heat treatment such as pasteurization. Once this was appreciated the elimination of tuberculosis from cattle ceased to be of primary medical importance and became henceforward a problem for the agriculturists and the veterinarians. The Ministry of Agriculture was not slow in realizing this, and in 1937 it launched its attested herds scheme, the object of which was not to provide the public with safe milk but to eradicate tuberculosis from cattle and build up herds of animals completely free from this infection. With the support of the Milk Marketing Board this scheme was made attractive to producers by offering them 1d. a gallon for their milk in addition to the penny which they could earn for producing clean milk. Large numbers of dairy farmers have taken advantage of this offer, and by the end of March, 1939, no fewer than 5,969 herds in Great Britain had become fully attested.

The basis of the Ministry of Agriculture's scheme is the tuberculin test. On this alone depends the fate of individual animals in the herd, and on this alone depends the certificate of attestation which can be given to the herd as a whole only when it has passed three consecutive tests at intervals of not less than sixty days without a single reactor. It follows that the tuberculin test must be completely reliable, or at least as reliable as any biological test can be made. Unfortunately, however, there is very serious doubt about this aspect of the test. No one who has followed the articles and correspondence in the veterinary journals during the past few years can have failed to be impressed with the diversity of opinion existing about it among members of the veterinary profession. It was partly to determine what grounds there were for the numerous allegations made against it that Buxton and Glover undertook an investigation, the results of which have been published by the Agricultural Research Council[1] and were noted in our issue of June 3 (p. 1149). These workers were able to show that the doping of animals to render them insensitive to tuberculin was not an easy task; that when repeated tests had to be made alterations in the degree of skin sensitivity could be avoided by giving the injections into areas of skin at least six inches apart; that skin sensitization could be induced by three or four injections of unheated but not of heated tuberculo-protein; and that, apart from the avian tubercle bacillus, Johne's bacillus, and possibly *Br. abortus*, non-specific sensitivity to tuberculin was not likely to result from infection with any organism other than the bovine tubercle bacillus. This information is clearly of importance, but it is a little surprising to learn that, though the technique of the double intradermal tuberculin test appears satisfactory, the type and potency of the tuberculin to be used, which necessarily affect the interpretation of the test, are still left open to the choice of the local veterinarian.

Large numbers of different types of tuberculin are in fact being used in this country. Since Montgomerie and Thomson[2] have recently shown

[1] Buxton, J. B., and Glover, R. E. (1939). "Tuberculin Tests in Cattle." Agric. Res. Counc. H.M. Stationery Office, London.
[2] Montgomerie, R. F., and Thomson, A. (1939). *Vet. Rec.*, **51**, 229.

that even the most reputable brands in current use differ considerably in potency, it would seem that the unrest among the veterinary profession is not far to seek. In human medicine tuberculin is now titrated in terms of an international standard, so that tuberculin of whatever origin can be brought to the same degree of potency. Is it not time that tuberculin for veterinary use was also standardized and that the use of any tuberculins other than those conforming to this standard was forbidden? Already considerable experience has been gained in this country in the standardization of tuberculin for human use. Would it not be wise for our veterinary colleagues to draw upon this experience in order to diminish the possibility of error in a test on which the future success of the tuberculosis eradication scheme must ultimately depend?

INCENTIVES AND DETERRENTS TO ABORTION

The report of the Interdepartmental Committee on Abortion was published on June 8 and some editorial comment on it appeared last week at page 1183. A summary of the document is given in our present issue at page 1248.

A large body of evidence was placed before the committee from which information could be gleaned as to the reasons which often lead women, and especially married women, to seek relief from an unwanted pregnancy by any means, however repellent, which might be open to them. In an appendix is given a formidable list of organizations and individuals who proffered evidence; through them, no doubt, information was obtained, by direct contacts with women of the industrial classes, as to the motives which prompt them so to act. From information thus received the conclusion is drawn that economic and financial stress play by far the largest part in leading women either to attempt abortion by their own efforts or to resort to an abortionist. Women rendered desperate by economic or other anxiety will often knowingly take the most serious risks in their effort to escape from their predicament. Impressed with the need for averting such a tragic occurrence, the report devotes a chapter to a consideration of the measures of economic relief to borderline families, and of direct financial and other assistance in pregnancy, which could with advantage be undertaken by the State or by the local authorities. Its recommendations upon these matters certainly deserve the sympathetic consideration of Parliament.

To alleviate conditions of hardship which may become incentives to criminal abortion is a sound prophylactic measure, and the committee has given it the fullest support. Another means of prevention obviously is the practice of approved methods of contraception under medical supervision; these methods the committee was informed are now attended by only a very low percentage of failures. In its chapter on birth control the committee treads as delicately as did Agag on his way to execution. Admittedly the subject is still highly controversial, though most of the early bitterness has been eliminated from the discussion. Avoiding ethical and religious aspects the point of view adopted is purely opportunist, and leads to the unexpected conclusion that though the practice of birth control would in many cases avoid the occasion for criminal abortion, the use of contraceptive methods should not be countenanced except when the occurrence of pregnancy would clearly menace life or health. And the reason which the great majority of the members found convincing is that any further dissemination of contraceptive knowledge, even if limited to married persons, would, by tending to lower the birth rate, be contrary to the public interest. This decision is the subject of a reservation which states the case for allowing married persons to obtain birth-control advice at municipal clinics in order to limit their families for economic reasons, and it is certainly surprising that it should have been made by no more than two members of the committee. Can it be that at this point the committee lost sight, for the moment, of the nature of its task? For it here declines to recommend measures which would have a definite, though maybe a limited, preventive value, from fear of repercussions that might or might not be strong enough to affect the estimates which are made of the future trend of population.

After measures of prevention the committee had of course to consider the efficacy of possible methods of deterrence. That women themselves are not deterred by knowledge of the risks run in resorting to criminal abortion—risks of death, of illness, or of prosecution by the police—is well known. Nor are the abortionists deterred effectively by fear of successful prosecution and punishment, for they well know that there will be little risk of detection so long as the women refuse to give them away. Information was furnished to the committee which showed that, while a large number of offences are known by the police to have been committed, in only a small proportion is the evidence obtained sufficient to secure conviction. Thus, in 1937, out of 197 known offences, in only fifty-seven could conviction be secured, nearly two-thirds of the persons sentenced being women abortionists. The victim as a rule resolutely refuses to give information, not, it appears, because in so doing she implicates herself, but from a sense of

loyalty to the principal offender. Another obstacle of almost equal substance is the difficulty of securing corroboration from persons other than the victim herself. So it comes about that the abortionists continue to carry on their "nefarious trade" in defiance of the police. The suggestion that power given to judges to inflict more severe penalties than those now allowed would be a valuable deterrent was not approved by the committee. The report very rightly points out that a greater measure of success in prosecution would be more valuable as a deterrent than the chance of receiving a more severe sentence should prosecution succeed, and in support of this view it is noted that the police believe that successful prosecution of an abortionist is usually followed by a local slowing down of the activities of suspected persons who are being kept under observation.

Possible methods of giving greater assistance to the police than they can at present count upon came under consideration. Certain concrete suggestions are made in the report—namely, that the police should have freer power to search the premises of suspected persons, that the law relating to the administration, with intent, of any poison or other noxious thing should be amended, and that coroners should be urged by the Home Office to "exercise the utmost vigilance" in investigating all deaths from abortion. Another recommendation, vaguer in terms, is that "doctors should seek to co-operate more closely with the police," and "should not press unduly their claim to medical privilege." There is no evidence in the report that doctors are unwilling to assist the police when they can do so without disclosing information received by them in professional confidence—in this way acting as informers—and it is doubtful whether doctors as a class stand in need of the committee's exhortation to do their civic duty. Nevertheless the question as to the point at which the professional duty of respecting confidence should become subservient to the general duty laid upon all citizens of assisting in the detection of crime is one that might well be reviewed in the light of present-day conditions, which are in some respects different from those obtaining when the Royal College of Physicians made its well-known pronouncement in 1896. This pronouncement is quoted with approval in the report, and the wish is expressed that doctors would act in all cases upon the advice there given. No clear indication is, however, given of what additional action they should be prepared to take.

Another proposal designed to deter abortionists was fully considered and rejected by a majority. This proposal was that a statutory duty should be imposed on doctors to notify to an appropriate authority every case of abortion, whether or not it is suspected to be criminal, which comes into their professional care, the records so obtained to be open to inspection by the police. Those who are in favour of this proposal believe that professional abortionists, both qualified and unqualified, would hesitate to carry on their work if they knew that any case which passed later into a doctor's hands on account of complications would be notified, and that this notification would be shown to the police on demand. Further, omission to notify if detected would, it is contended, of itself arouse suspicion and direct the attention of the authorities to doctors who failed to comply with the regulations made. It is assumed that no insuperable difficulty would arise in enforcing the obligation to notify, though it is recognized that great unwillingness might be encountered on the part of the patient herself and her relatives. The committee was well advised to reject this plan, which we believe would encounter resolute opposition from the general body of the medical profession and from the great majority of its leaders. It would not have the remotest chance of becoming effective unless it were supported by public opinion both within and outside the medical profession.

CHEMOTHERAPY AND BACTERIAL METABOLISM

The idea has been gaining ground for some time that sulphanilamide produces its effect on bacteria in the body by interfering in some way with their metabolic activities. If in its presence the processes by which they obtain nutriment cannot continue, and their multiplication consequently ceases, this would account fully for the most striking therapeutic action, without having to assume any more direct form of injury to the bacterial cell. It was shown by Lockwood[1] that peptone prevents the bactericidal action of sulphanilamide on streptococci in serum, and he deduced from this that sulphanilamide inactivates the enzymes whereby the streptococcus breaks down serum proteins into simpler and assimilable products. This observation reconciles the conflicting results of tests made either *in vivo* or in blood *in vitro*, and those made with ordinary culture media such as broth, in which sulphanilamide has comparatively little power to interfere with bacterial activity—so little indeed that many authorities, particularly on the Continent, still refuse to admit that its action in the body is of a nature direct and simple enough to be capable of any *in vitro* demonstration. To accept Lockwood's hypothesis is not to exclude the possibility that bacterial metabolism may be obstructed or perverted in other ways, and another idea recently put forward by Locke, Main, and Mellon[2] is therefore not actually inconsistent with it. These authors suggest that the directly lethal agent when a pneumo-

[1] *J. Immunol.*, 1938, **35**, 155.
[2] Ibid., 1939, **36**, 183.

coccus dies in the presence of sulphanilamide is hydrogen peroxide. Many bacteria, including the pneumococcus, form peroxide, and it is a condition of their continued growth that this should be destroyed as fast as it is formed by catalase, which may either exist in the medium in which growth takes place or be produced by the bacteria themselves. This is a reaction of much significance in several directions; incapacity to form catalase, for example, has been regarded as the explanation of obligatory anaerobiosis. The only fact adduced by Locke and his colleagues in support of their hypothesis is that when a solution of sulphanilamide is exposed to ultra-violet light it develops anti-catalase activity. To conclude from this that a substance derived from sulphanilamide in the body inhibits catalase and thus permits the accumulation of bacterial peroxide involves several unproved assumptions, and without further evidence it remains little more than an interesting idea. Meanwhile, a small but very significant piece of evidence is forthcoming which makes it seem improbable that there is any truth in this idea after all. Streptococci also form peroxide, and if the pneumococcus is destroyed in this way it is hardly to be expected that streptococci would escape the same sort of fate. It was observed long ago that occasional strains of *Str. pyogenes* failed to form peroxide, but at that time no other difference in their properties was known or demonstrable. Fuller and Maxted[3] have now studied the capacity to form peroxide of seventy-five strains, including representatives of all Griffith's types belonging to Group A, and found that failure to form peroxide is exclusively a character of Griffith's Type 3; ten strains of this type gave uniformly negative results. According to the hypothesis of Locke, Main, and Mellon, these Type 3 streptococci should be insusceptible to the action of sulphanilamide. So far from this being so, two of the ten strains examined have been extensively used in numerous experimental chemotherapeutic studies (one of them, "Richards," has become almost classical for this purpose) and have been shown to be fully susceptible. If it is necessary to find some different explanation for the action of sulphanilamide on these organisms, what is true of them will presumably hold for other streptococci, and probably for other bacteria as well.

[3] *Brit. J. exp. Path.*, 1939, **20**, 177.

BLOOD FOR THE FIGHTING SERVICES

Owing to the speed of modern transport it is possible to collect blood for transfusion purposes in a relatively peaceful area and send it to points on a fighting front where it is most required. With this in view the authorities have in mind to organize a blood-collecting depot in Bristol for the supply of blood to the fighting forces. The depot will be situated at Southmead Hospital, where facilities have been granted by Dr. R. H. Parry, medical officer of health for Bristol. The organization of this depot is already under way, and it is hoped within the next few months to obtain and to group 10,000 volunteers from among the women employees of the big commercial firms in Bristol. The managers of the firms who have been approached have offered every facility. In time of war subsidiary blood-collecting centres would be established in the big towns of the West of England, so that the number of donors could be increased to 100,000. The central depot at Southmead Hospital would be for the collection and storage of blood in specially designed pint bottles. The proximity of Filton Aerodrome would allow the blood rapidly to be flown to its destination.

RADIATION OF PITUITARY TUMOURS

Radiotherapy is a valuable agent in the treatment of the so-called pituitary adenomata whether they are chromophobe, acidophil, or basophil in type. Of these three types the basophil tumour is the most radiosensitive, while the acidophil tumour (which is associated with acromegaly) is probably rather less radiosensitive. Opinion has been divided on the degree of response of the chromophobe tumour, and with the object of ascertaining this M. T. Schnitker, Elliott C. Cutler, O. T. Bailey, and W. W. Vaughan[1] have recently studied the question at Harvard. Most pituitary adenomata occur in the anterior lobe. Harvey Cushing's remarkable series of 385 consisted, with the exception of a few rare basophil tumours, of 73 per cent. of the chromophobe variety, 20 per cent. acidophil, and 7 per cent. classified as mixed. The chromophobe adenoma is believed to be non-secreting—that is, the symptoms result only from its pressure on adjacent structures. It depresses the function of the pituitary gland (hypopituitarism), and stretching of the diaphragma sellae and pressure on the optic chiasm give rise respectively to headache and characteristic limitation of the visual fields. Ophthalmological examination ultimately reveals primary optic atrophy. There is very rarely any choking of the nerve head because only exceptionally large pituitary tumours cause increased intracranial pressure by obstructing the cerebrospinal fluid pathways. A certain proportion of the chromophobe tumours—cystic in type—are unaffected by radiotherapy: among the solid tumours the degree of response varies. Intensive radiotherapy is well worth a trial in the chromophobe adenomata, but if at the end of three months there has been neither subjective nor objective improvement it is usually futile to persist; operation should be advised before this if vision is becoming progressively worse. The visual fields should be mapped out every two to four weeks, since the size of the fields provides an accurate criterion of the degree of response of the tumour. In some cases this is early and definite: headaches are relieved and there is expansion of the visual fields with a general subjective feeling of well-being early in the course of treatment. Some patients complain of lassitude and lack of energy after the course of irradiation is completed, but this can often be relieved by administering anterior pituitary extract intramuscularly. Schnitker, Cutler, Bailey, and Vaughan have been able to distinguish two varieties of chromophobe adenoma according to whether the cells were arranged in sinusoidal or in a

[1] *Amer. J. Roentgen.*, 1938, **40**, 645.

diffuse manner. Either variety may become cystic, implying probably a liquefactive necrosis, but the sinusoidal, which are the more vascular, tumours are more radiosensitive than the diffuse type. In an article on acromegaly W. W. Vaughan[2] concludes that radiotherapy should be tried in all pituitary adenomata before resorting to surgery unless there is imminent danger of permanent visual impairment. He makes the important point, however, that the radiologist should treat these patients only in conjunction with a neurological surgeon.

ANOXIA AND SILICOSIS

Seevers, Enzer, and Becker[3] have recently reported the results of rebreathing tests in cases of pulmonary fibrosis associated with exposure to siliceous dusts. In workers exposed to a silicosis hazard the changes in the lungs vary from barely detectable *x*-ray evidence of fibrosis to massive confluent infected silicosis, and coexistent with the pulmonary lesions there may be cardiac involvement of greater or less degree. Except for dyspnoea, which is the outstanding symptom leading to disability in uncomplicated fibrosis, compensation and adaptation in cases of silicosis are so good that the lungs and circulation may continue to function almost normally for long periods. It is still by no means clear what the mechanism of dyspnoea is in pulmonary fibrosis. Seevers and his co-workers incline to the view that the primary stimulus to dyspnoea lies not in the cardiovascular system or in the physicochemical constitution of the blood but in the diminished distensibility of the silicotic lung structure, which tends to accentuate the afferent nervous stimuli for a given intake of air; the result is shallow and rapid breathing. These authors studied the responses of some 130 foundry workers to a concentration of oxygen gradually diminishing to 10 per cent. over a thirty-minute period and to a five-minutes inhalation of an oxygen–nitrogen mixture containing 10 per cent. oxygen. The workers were classified clinically into pulmonary and cardiovascular groups, each group being divided into subgroups according to the extent and character of the pulmonary or cardiovascular involvement. Extensive observations were made on each subject before, during, and after the test period. The results obtained show the remarkable degree of adaptation possible. Even with well-marked disease of the heart and blood vessels circulatory failure does not appear during the thirty-minute period of rebreathing until the oxygen concentration is down to 10 per cent. Five minutes' inhalation of 10 per cent. oxygen, however, leads to circulatory failure in subjects with cardiovascular disease and brings to light latent defects in cases with no obvious signs of circulatory insufficiency. Cases which show circulatory failure at low oxygen concentrations also have a poor respiratory compensation; they increase the respiratory minute volume by rate rather than depth. An important conclusion reached from these experiments is that anoxaemia is not the primary cause of dyspnoea in pulmonary fibrosis. Allowing for changes due to age, no definite evidence of latent cardiac incompetence was obtainable in cases of different degrees of pulmonary fibrosis until this process was very advanced. The commonly held view that the right heart is involved in pulmonary fibrosis is contested by these authors, who consider that if such were invariably the case the congestive type of heart failure would be more usual in these cases than it actually is. In long-standing and advanced cases effects on the right heart are certainly observed, but the general proposition is not supported by their experiments. The final conclusion arrived at is that "the capacity of the circulatory mechanism as a whole to withstand the severe strain of oxygen deprivation is reduced much more by the natural ageing process and by diseases which affect the heart and vessels than by the occurrence of pulmonary fibrosis of moderate degree."

[2] *Amer. J. Roentgen.*, 1938, **40**, 660.
[3] *J. indust. Hyg.*, 1938, **20**, 593.

A NOT UNGENEROUS PROFESSION

A good deal has been said and written at various times deploring the apathy of the medical profession towards its charities, but at first sight the 103rd annual report of the Royal Medical Benevolent Fund hardly lends colour to the complaint. A couple of hundred pages are packed with the names of individual subscribers, nearly all of whom are members of the medical profession. There must be between seven and eight thousand of these, and in addition there are the large numbers represented by group subscriptions and collections. Substantial sums have been contributed by Branches and Divisions of the British Medical Association, by medical societies and hospital staffs, by Local Medical and Panel Committees, and by masonic lodges and chapters which have a medical connexion. The contribution of £1,500 made to the Fund last year by the Charities Committee of the British Medical Association and the £2,000 transmitted from the Medical Insurance Agency have also to be reckoned. The B.M.A. Division which last year topped the list was Brighton with a donation of £60, but it was run very close by a Branch as far away from Cavendish Square as Malaya, which sent over £50. Some quite impressive sums have also come by way of panel committees, led again by Norfolk with a subscription of £106, followed by seven others with subscriptions of over £50. The Norfolk Committee in all has given £850 to this charity, Cheshire has given over £600, and Gloucestershire and Leicestershire have each given nearly £500. The list of individual subscribers shows how fortunate the Fund is in the faithfulness of its friends. The list gives not only the subscriptions for last year but the accumulated totals for the last thirty years. During that period three benefactors, headed by the veteran president of the Fund, Sir Thomas Barlow, have given amounts which run well into four figures, while fifty who are also present subscribers have given £100 or over. In the list of deceased benefactors one finds such names as Andrew Clark, William Jenner, James Paget, Richard Quain, and Erasmus Wilson, but the present generation, living in a time more difficult, holds its purse-strings just as loosely. No doubt if

the Fund chose to appeal to the general public it would have largely increased amounts at its disposal, but it does well to appeal only to the medical profession. The income last year from subscriptions and donations was £16,342, which is about 5s. 6d. per head for every name on the *Medical Register*. When it is remembered that large numbers support Epsom College and other professional charities, perhaps the figure is not as unworthy as is sometimes suggested. But the real measure of the demand is the number of cases in need, and this is brought home in a leaflet by Sir D'Arcy Power, chairman of the committee of management, which is enclosed with the report. It would be no small advantage if the Fund could increase its annuities which are granted to members of the profession or dependants of deceased members who are wholly or almost destitute. Nearly all the annuities are under £40, on which not even Goldsmith's parson would be "passing rich" in these times.

THE NUFFIELD SCHEME IN ACTION

The first number of the sixth volume of *Oxford*, the distinctive little periodical issued by the Oxford Society,[1] contains, among much interesting university personalia and news, a review by Sir Farquhar Buzzard of the present position of the medical scheme established by Lord Nuffield's benefaction at the end of 1936. The four basic departments have now been at work for about a year, and considerable building of additional wards, laboratories, and offices has taken place. The department of medicine, over which Professor L. J. Witts presides, in addition to the care of a group of twenty beds, has its own out-patient days, and through the kindness of the honorary staff of the Radcliffe Infirmary its members are also able to see patients in any of the medical wards. The department of surgery, under Professor Hugh Cairns, is devoted to the clinical study of diseases of the nervous system in so far as they come within the scope of surgery for treatment. The ward unit is designed for twenty-one patients, and the professor has access to patients suffering from head injuries in the general surgical wards. He has secured the temporary services of Dr. P. del Rio Hortego, of Madrid, one of the foremost authorities on the nature and structure of tumours of the brain and spinal cord. The department of obstetrics and gynaecology, in charge of Professor Chassar Moir, includes a new gynaecological ward and ante-natal and post-natal clinics. Professor R. R. Macintosh, who is in charge of the department of anaesthetics, has undertaken large responsibilities in organizing the anaesthetic services not only of the Radcliffe Infirmary but of several other institutions in the neighbourhood, such as the Eye Hospital and some outlying school clinics. In addition to these four principal departments, those of therapeutics and of orthopaedic surgery receive subsidies and research grants from the Nuffield Committee, and further developments in the department of orthopaedics are contemplated in the near future. The Nuffield Committee has also established a fluid research fund for subsidizing important research work in special subjects. Altogether the scheme, Sir Farquhar Buzzard writes, is working smoothly, and a very considerable amount of active research is being carried out in the various departments. It is too early to expect important results, but there is every hope that Lord Nuffield's foresight and generosity will bear fruit in the coming years. Another Oxford development is the progress of the building of the new Clarendon Laboratory, which is to serve as a physics department. This is now so far completed that the apparatus will be moved in during the long vacation, and the work of the department will start in its new quarters next term. The new laboratory of physical chemistry, the erection and equipment of which have been made possible by a gift of £100,000 by Lord Nuffield, is also in building but is not expected to be ready for use until Michaelmas Term, 1940.

[1] Oxford University Press. London: Humphrey Milford. (1s. net.)

MEDICAL BIRTHDAY HONOURS

The medical names in the Birthday Honours List published on June 8 will be found at page 1247. Dr. Robert Hutchison, President of the Royal College of Physicians of London, receives a baronetcy, thus marking the great position he has long held in the eyes of his profession. Sir John Weir, Physician to the King and to Queen Mary, is promoted Knight Grand Cross of the Royal Victorian Order. The medical heads of the three Services are also honoured by promotion: Lieutenant-General William Macarthur and Surgeon Vice-Admiral Percival Nicholls becoming K.C.B., and Air Vice-Marshal Albert Richardson, K.B.E. Knighthoods are to be conferred upon Professor Robert Kelly, F.R.C.S., of Liverpool; Dr. Thomas Drummond Shiels, medical secretary of the British Social Hygiene Council; Dr. Edwin Butler, F.R.S., secretary of the Agricultural Research Council; and Dr. Rupert Briercliffe, Director of Medical Services, Nigeria; also on Professor John Graham Kerr, F.R.S., who though not a member of the medical profession has a place on the Parliamentary Medical Committee as M.P. for the Scottish Universities.

We regret to announce the death of Dr. H. A. Lafleur, emeritus professor of medicine at McGill University, Montreal, and for many years a leading figure in the medical profession of Canada; also of Dr. Archibald McKenzie, senator of the South African Parliament and for five years a member of the South African Union Medical Council.

The Macewen Memorial Lecture will be delivered in Glasgow on Tuesday, June 20, by Professor Grey Turner. The title is "The Macewen Outlook in Surgery."

The Association of Surgeons of Great Britain and Ireland invites applications for the Moynihan Fellowship to the value of £350, to be held for one year, and to be awarded in November. The object of the Fellowship is to enable the holder to pursue a definite line of research or to study surgery in specified clinics either at home or abroad. Applications must be received by the Secretary of the association, Mr. Philip H. Mitchiner, F.R.C.S., at 50, Wimpole Street, W.1, by September 30, as must letters from the sponsors of candidates.

WAR WOUNDS AND AIR RAID CASUALTIES

The following is one of a series of lectures on the Treatment of War Wounds and Air Raid Casualties recently delivered at the British Postgraduate Medical School

INJURIES OF THE LOWER LIMB—I

BY

ST. J. D. BUXTON, M.B., B.S., F.R.C.S.

During the great war it soon became clear that no effort should be spared to find any method of treatment that would lessen the permanent drain upon the nation caused particularly by gunshot wounds of the lower limb. General principles became established, and of these perhaps the most important was the early operative treatment, as the only means of avoiding those terrible septic complications that are the cause of the majority of bad results. Hence the really important surgery is done, if possible, at casualty clearing stations and not at the base. But the responsibility of those concerned with the after-treatment is not less than that of the operator. Obviously the title of this lecture includes many injuries occurring in times of peace. The treatment of these will not differ in times of war, excepting that greater delay in transport is liable to occur and evacuation will necessitate changing the patient's doctor probably several times.

First-aid Treatment

One cannot escape the impression that those who survive a bombardment such as is now possible from the air may receive wounds of greater severity than the average wounds sustained during 1914–18. Wounds of the soft parts may be so slight that the injured can hobble to an aid post, or so severe that traumatic shock is serious. In fact, an extensive injury or multiple wounds of the thigh may be accompanied by as much shock as with a fractured femur or mutilated leg. Haemorrhage will aggravate such a condition.

The aid post, or immediate, treatment will consist sometimes in dealing with haemorrhage and always in the application of a dressing (first-aid or shell). Immediate evacuation of the severer cases on a stretcher is carried out, if possible. It must be appreciated, however, that the prevention and early treatment of shock are of paramount importance in all but slight gunshot wounds of the lower limb. It was soon appreciated that immobilization of a badly damaged limb was a factor in limiting shock. This can be best achieved by the early application of a Thomas splint over boot and trousers, which also provides some relief of pain during transport. The Thomas's splint drill as set out in the 1935 *Royal Army Medical Corps Training Manual* is somewhat cumbersome, but can be carried out efficiently by a trained squad. A simpler method described in the British Red Cross Society's *First Aid Manual* can be used by two persons (Fig. 1). The apparatus is limited to the splint and three bandages. Administrative officers and surgeons should neglect no opportunity of impressing on those working at first-aid posts in air raid areas that prevention of shock and immobilization of the lower limb followed by quick evacuation to an operating centre will save both lives and limbs.

General treatment, before operation, in prevention of shock and injection of sera (described in a previous lecture), is followed by that applicable to wounds of the lower limb. This will differ according to the length of time after injury that the patient reaches the operative centre. First, in the pre-inflammatory period, it will comprise (1) primary excision and suture (rarely), (2) incision, or excision and cleansing of the soft parts, (3) treatment as (2) of wounds complicated by fracture or joint lesion; secondly, in the inflammatory period, in treatment of inflammation of phlegmonous type (usually streptococcal) and treatment of gas gangrene.

A description of the third, or suppurative, period is uncalled for here. It is seen after road accidents, and is familiar to you. Reference to knee-joint suppuration will be made later.

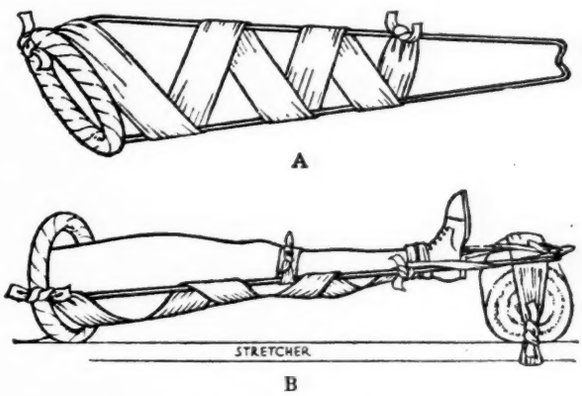


FIG. 1.—Use of a Thomas splint. A.—Thomas's splint with bandage looped over side irons to make a trough. B.—Thomas's splint applied. Note trough made of bandage, clove-hitch around ankle, with bandage carried round bars and tied at notch at end of splint. Bandage below knee prevents leg rising off splint. End of splint is resting on rolled-up rug; a bandage holds this in place. This, or an additional one, should hold the splint to the rolled rug and stretcher; it is not shown doing so, in order to expose the extension bands.
Instead of the clove-hitch extension, a skewer may be passed through the upper of the boot, just in front of the heel, and cords attached to each end.

The Pre-inflammatory Period

PRIMARY EXCISION AND SUTURE

This is seldom applicable to the lower limb. It is a method which, when successful, is economical in healing-time and in saving pain. It is not recommended if more than six hours have elapsed since the injury. It is suitable in the gluteal region in the case of a shallow wound caused by a bullet or a small piece of shell. Occasionally a wound of the thigh where the places of entry and exit are only two inches apart may be so treated. The method should not be employed when there is another serious wound from which the lymphatics and veins pass through or near the smaller one. Nor should it be used if the operative technique necessitates the removal of a piece of metal, cloth, or mud.

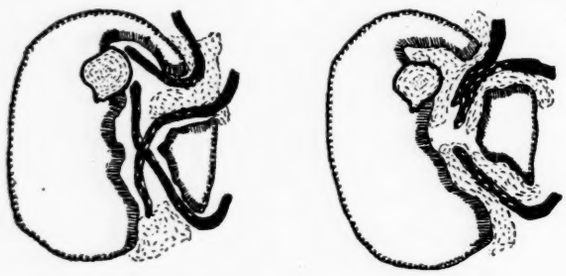
INCISION, OR EXCISION AND CLEANSING OF SOFT PARTS

With a well-organized medical service this is the routine line of treatment. It should be carried out as soon after the wound as possible, during the period when the muscles and cellular tissue appear normal and when there is no swelling or lymphatic infection. This state may last for twelve or twenty-four hours, but seldom longer. During this period large incisions, with the removal of foreign bodies

(such as clothing) and projectiles, are not dangerous. After this time similar incisions, particularly in muscle, will lead to an aggravation of local and general signs and usually septicaemia.

After clinical and radiological examination the patient is anaesthetized and an extensive area of skin shaved and cleaned. If the wound is of soft tissues only, and can be excised without damage to blood vessels and nerves and without making a very large wound, this should be carried out: it may be possible in the gluteal area and on the outer side of the thigh, but seldom in the calf. If incision cannot be done, the skin edges, underlying fat, and maybe aponeurotic tissue are excised and the opening of the wound or wounds enlarged in the long axis of the limb. The operator has to use discretion with regard to the extent of removal of contused and dirty muscle in the course of the wound. All foreign bodies should be removed if possible, particularly from the thigh and calf. Search for a piece of clothing just distal to the portion of projectile should never be neglected. Rough treatment of the tissues is to be avoided. Haemostasis is important, and extravasated blood in buttock, calf, and thigh must be removed. Time is undoubtedly wasted in a large muscular area in trying to extract many pieces of a projectile such as a hand grenade. In such cases the larger wounds are dealt with alone.

At this stage no counter-opening for drainage is made. The wound is washed out—my own preference is for spirit if available—and then the smaller wounds are packed loosely with gauze wrung out in 1 in 1,000 solution of flavine. In the larger injuries lint smeared with petroleum jelly is applied to the edges of the wound, Carrel's tubes are inserted, and gauze packing is placed at the orifice. The details of this technique have been described by another lecturer, but stress may be laid on the correct method of placing the gauze at the orifices, and not between the deep parts of the wound and the tubes (Fig. 2)—an all-important point in treating the thigh. The



A: Correct. B: Incorrect.

FIG. 2.—Showing introduction of Carrel's tubes into wounds of thigh. Gauze packs are placed correctly at opening of wounds in (A), whereas in (B) they are wrongly placed between Carrel's tubes and the wound surface.

instillation of Dakin's solution soon becomes standardized in a hospital dealing with many wounded.

TREATMENT WHEN FRACTURE OR JOINT LESION EXISTS

The preliminary treatment is that just described. The incisions are made by preference on the anterior aspect of the thigh or leg, so that the irrigating fluid comes in contact with the bone. If a counter-opening is made, the fluid runs out and much of the objective of the Carrel method is lost. In the case of the femur it is important to make the incision of sufficient length to allow irrigation of every portion of the fracture, and to pack the wound at the openings so that the muscular mass does not fall together. This is aided by large rubber tubing three centimetres in diameter.

The removal of bony fragments which are loose or nearly so is important. Small fragments should be extracted, particularly when in muscle: here in the presence of mild infection they cause suppuration, which spreads rapidly both in the thigh and in the calf. Large fragments usually have some periosteal attachment. They should be left in the thigh and leg unless drainage is obstructed. If articular cartilage is on a large piece the piece should be removed, otherwise the joint will certainly become infected. Rarely, such a fragment acts as a foreign body. Even if only one-third of the circumference of the bone is left new bone may form from the fragment. The treatment of wounds involving the knee-joint will be described later.

The Inflammatory Period

Streptococcal infection of gunshot wounds of the thigh and calf often gives the muscles the appearance of a solid yellowish mass. At this stage surgical intervention should be minimal (unless the indication is to amputate). A small incision for the removal of a piece of shell, if possible with the introduction of Carrel's tubes, should be made. This limited procedure is of great importance if the femur or tibia is fractured. If amputation does not appear necessary, an attempt should be made to direct Carrel tubes into each area of wound surface. If there is improvement and suppuration occurs later, further operative treatment will be required.

These cases are the most difficult ones met with in surgery of the lower limb, particularly when the upper third of the thigh is affected and the upper part of the leg has a wound extending into the knee-joint. In the latter case amputation is undoubtedly a life-saving measure, whereas it is rarely even contemplated in the former. It may be pointed out that in civilian practice the extensive opening up of open fractures of the femur during the inflammatory period has been followed by disastrous results.

Gas-gangrene infection of the thigh and calf was particularly common among troops who were evacuated direct to the base or reached operating centres behind the front line after delay; it was uncommon in thigh wounds which were dealt with in the pre-inflammatory period. The general signs of septicaemia from an aerobic infection are no less striking than the local ones. When the patient suffers from severe shock, restlessness, and nausea, and has a rapid small pulse, amputation occasionally saves life. When the general condition is little, or not, affected, incisions throughout the whole length of the quadriceps and right down to the femur may be valuable. If possible the vascular sheath should be incised to limit pressure on the vessels. In many of these cases amputation is indicated. In rare instances the gas infection is limited to a muscle group. If this be so the whole muscle tissue should be ablated. Irrigation of these wounds is employed.

Before leaving the technique of operative treatment, the possibilities of secondary suture consequent on primary excision and sterilization by the Carrel-Dakin method should be considered. During the war, when conditions allowed, the extent of the infection was tested by the periodic estimation of "organisms per field." When only one or two organisms were present per field on subsequent days, secondary suture with a few thick silkworm-gut sutures was employed. Naturally this was impossible at times of pressure, and was generally interfered with by transportation of the patient.

Fig. 1 is reproduced from the British Red Cross Society's *First Aid Manual*, by kind permission of the publishers.

REPORT OF AN ENDOCRINE CLINIC

BY

B. JOAN HARAM, M.R.C.S., L.R.C.P.

Assistant Pathologist, Elizabeth Garrett Anderson Hospital

An endocrine clinic in the charge of Miss Landau was inaugurated at the Elizabeth Garrett Anderson Hospital in February, 1938, and it is possible that a record of the results obtained after a year's work may be of some interest in view of the recent widespread increase in the use of endocrine therapy. The organization of such a clinic presented many difficulties, and as a result of the experience gained various alterations and improvements have suggested themselves.

The clinic was held weekly, and patients were referred to it from other departments of the hospital or sent direct by their own doctors. Unfortunately, from the point of view of a subsequent estimation of results, a number of them had had previous endocrine treatment. Altogether 208 patients attended, but some of these were found to be unsuitable, so were transferred to other clinics, some were sent back to their private doctors, and some attended too late in the year for the effect of their treatment to be apparent. Of the remainder many did not attend regularly on account of the lack of funds or time, and some were disheartened after perhaps one course of injections. Sixty-six who failed to return in due course or to report progress were communicated with during the year, but only fifty replied, from which it will be seen that the assessment of the results obtained has been complicated by many extraneous circumstances. In consequence seventy-seven cases out of the total number can be disregarded, leaving 131 who received treatment over a reasonable period of time. In the following analysis, however, every patient who attended at all is taken into consideration. The numbers in each group and the subsequent results will be found in the accompanying table.

Analysis of Results

Condition	Total Number	Number Discounted	Reduced Total	Success	Improvement	
					Much	Slight
Amenorrhoea	25	7	18	2	1	4
Oligomenorrhoea ..	35	12	23	9	6	5
Menorrhagia	37	16	21	8	11	0
Dysmenorrhoea ..	7	0	7	1	0	0
Menopausal symptoms	14	4	10	8	0	1
Sterility, with						
(*a*) Regular cycle ..	21	5	16	1	—	—
(*b*) Menorrhagia ..	5	0	5	1	3	—
(*c*) Oligomenorrhoea	22	8	14	2	6	—
(*d*) Amenorrhoea ..	10	4	6	0	3	2
Unclassified	20	9	11	2	2	0
Unsuitable cases ..	12	12	0			
Totals	208	77	131	34	32	12

The principal disorders dealt with were amenorrhoea, oligomenorrhoea, menorrhagia, dysmenorrhoea, menopausal symptoms, and sterility. There were also twenty cases which were unclassified and twelve which were found to be unsuitable for treatment at the clinic.

Amenorrhoea

By this we implied the absence of menstruation for six months or longer. Twenty-five such cases attended during the year, of which one was primary and twenty-four secondary in type. The duration of the amenorrhoea extended from seven months to six years, the majority being over a year. Twenty-three of the patients were single and two married.

The primary case had a history of tuberculous peritonitis, for which she had been operated upon in 1916. Her general health was good, and she was advised to have no endocrine treatment.

In the secondary group seven can be disregarded for the various reasons enumerated above. One of these was found to have pulmonary tuberculosis, and was admitted to hospital. Of the remaining seventeen, two cases responded with four regular periods following nine and twelve months' amenorrhoea respectively, one being treated with thyroid only and the other with courses of dimenformon and antuitrin-S. A somewhat similar case had four irregular periods after dimenformon only, and another menstruated regularly for a few months after thyroid and iron, but subsequently relapsed. Seven cases had one period following prolonged amenorrhoea, but in two of these the bleeding was probably due to oestrin withdrawal, and in the remaining five it is unlikely that a regular cycle has been established. Four cases had only had one or two periods since puberty, and although none of them menstruated, two improved in general health, one with theelin and one with antuitrin-S. The remaining two did not continue treatment. Two cases failed entirely to respond, in spite of treatment for four months or longer.

Oligomenorrhoea

In this group fourteen patients were married and twenty-one single. Of the total thirty-five cases twelve may be disregarded. On oestrin preparations, antuitrin-S, thyroid, and iron nine cases showed a sustained improvement in the regularity and amount of flow, six a certain amount of improvement, and five a temporary response only. Two became better in their general health and one was unaffected by four months' intensive treatment.

Menorrhagia

Thirty-seven patients complaining of menorrhagia attended during the year, sixteen being married and twenty-one single. Of the total number sixteen may be discounted. One of these was found to have a cough and was admitted to hospital, a radiograph showing a recent phthisical lesion. Of the remaining twenty-one cases eight had several normal periods (from three to nine in number) after treatment with proluton (five cases), menformon (one case), and iron (two cases). Three of the cases treated with proluton have had normal and regular periods for five, seven, and eight months respectively since the cessation of the treatment. Eleven cases showed some improvement, including two cases of puberty menorrhagia, and two failed to respond after five or six months' endocrine therapy.

Dysmenorrhoea

Very few cases of dysmenorrhoea were referred to the clinic, the majority being dealt with successfully in other departments of the hospital. Of the seven who did attend only one showed definite improvement after dimenformon, the remaining six being either unaffected by endocrine therapy or responding equally well to the psychological effect of a course of injections of inert sterile olive oil.

Menopausal Symptoms

These patients, who complained principally of flushes and headaches, proved to be the most responsive to treatment. Four of the fourteen who attended can be disregarded; seven showed a great improvement when treated with menformon or theelol by mouth, and a further successful result was that of a girl of 22 who had had a bilateral salpingo-oophorectomy for old-standing tubercle, and who was treated two months later by the implantation of a 15-mg. tablet of oestrone beneath the skin of the abdominal wall. Deanesly and Parkes (1937) and Parkes (1938) describe the advantage of the slow rate of absorption obtained by this method, and Bishop (1938) records a very similar case. The flushes decreased from two to one daily, and have now, after six months, ceased to trouble the patient at all. The economic advantage to the patient and the hospital is obvious, and it is hoped that further opportunities for proving the value of this method of treatment will occur. The two remaining cases in this group improved at first but relapsed later in spite of continued treatment.

Sterility

The fifty-eight cases of sterility were divided into two groups —those with a regular cycle (twenty-one cases) and those with an irregular cycle (thirty-seven). Of the latter, five complained of menorrhagia, twenty-two of oligomenorrhoea, and ten of amenorrhoea. In most cases the patency of the Fallopian tubes had been tested by uterosalpingography, and the activity of the husband's semen established before endocrine therapy was initiated. It was not, however, always possible to achieve this. It is interesting to note that Moore White (1939) also reports this difficulty as regards the husbands, and the rate of male sterility in her examined cases is 21 per cent. This high result emphasizes the importance of this investigation in all cases.

Sterility with Normal Cycle.—Five of these twenty-one cases may be disregarded; three became pregnant, but in only one case, a patient who had been married for two and a half years, was the pregnancy presumably due to endocrine treatment. The method adopted in this and the majority of these patients was on the same lines as that originally laid down by Kaufmann (1934) for promoting a normal cycle in castrates. Dimenformon, 10,000 I.B.U., was injected on the fifth day of the cycle, followed by 50,000 units on the twelfth day and proluton, 1 or 2 mg. daily, from the twenty-second to the twenty-sixth day inclusive. In three cases the chance of pregnancy was remote, two of these patients being shown by uterosalpingography to have a uterus bicornis (and the husband of one of these was reported sterile on a single examination of the semen), and the third being a patient aged 42 who had been married for eighteen years. Pelvic abnormalities were found in four cases, and in the remaining six no adequate reason has as yet been discovered to account for the failure to become pregnant. It is interesting to note that in two of these the regularity of the menstrual cycle was disturbed by hormonal administration.

Sterility with Menorrhagia.—Of the five cases accompanied by menorrhagia one patient became pregnant after intensive endocrine treatment, three were improved as regards the menorrhagia, and one was unaffected.

Sterility with Oligomenorrhoea.—Out of twenty-two cases eight may be disregarded. Three patients became pregnant, two presumably as a result of hormonal treatment, one of whom had been married for three and a half years and one for six years. Six showed improvement in the regularity of the cycle, and in three cases the condition remained unchanged. The other two cases had complicating conditions—one a history of tubal abortion, the remaining ovary being tender and prolapsed, the other having recently had a suprasellar cyst removed with apparently complete recovery.

Sterility with Amenorrhoea.—Out of ten cases four may be discounted, three had one or two periods after treatment and felt better in general health, two improved generally but failed to menstruate, and one was unaffected.

Unclassified Conditions

Of the twenty cases nine may be disregarded. The remaining eleven comprised two pregnant patients with histories of previous miscarriages, one case each of dyspareunia, relative sterility, frigidity, leucoplakia, leucorrhoea, and macromastia, and three cases of pruritus vulvae. One of the pregnant patients was treated with antuitrin-S, 1 c.cm. weekly for five months, and was delivered normally at term; the other was treated with progestin, 1 c.cm. weekly for three months, and is now nearly six months pregnant and has shown no sign of miscarrying. The patient who complained of dyspareunia improved with a course of gonadyl, and the case of leucorrhoea responded to dimenformon. The remainder failed to respond to endocrine therapy.

Investigations

As an indication of the existing condition and a guide to treatment endometrial biopsies were performed in the clinic upon twenty-eight patients, care being taken, when possible, to ensure that no endocrine treatment had been given previously and that the secretory phase in the cycle had been reached, in order that any luteal deficiency might be detected. Two of the patients complained of oligomenorrhoea, twelve of menorrhagia, one of dysmenorrhoea, two of sterility with a regular cycle, five of sterility with menorrhagia, and six of sterility with oligomenorrhoea.

On histological examination both cases of oligomenorrhoea and the case of dysmenorrhoea showed a delay in the development of the luteal phase. Ten cases of menorrhagia showed the appearances expected for the time in the cycle at which the biopsy had been performed, and the other two showed luteal deficiency, one in a very considerable degree. Both these responded to proluton, the severe case needing intensive treatment. It is interesting to note that in none of this series was there evidence of metropathia haemorrhagica.

The two cases of sterility with a normal cycle revealed a normal endometrium. Of the cases of sterility accompanied by menorrhagia two showed the secretory phase as expected and one subsequently became pregnant, one showed great variation, and two suggested luteal deficiency. Of the patients complaining of sterility and oligomenorrhoea, all six showed the appearance characteristic of an earlier phase in the cycle than the date of the last period suggested, this delay being very marked in five cases.

In view of the fact that great variation in appearance may occur in the different fragments of a complete curettage it is probable that too much importance may be attached to the interpretation of a single small strip. Wollner (1937, 1938), in his description of cervical biopsies, while stressing their advantages also emphasizes the scarcity of patients with a normal endometrium or cervical mucous membrane. Nevertheless, the similar histological appearances found in all the cases of sterility accompanied by oligomenorrhoea are worthy of note, and must surely be more than coincidental. In five cases which suggested the possible presence of excess folliculin—four of them complaining of menorrhagia and one of oligomenorrhoea—the hormonal content of the urine was estimated by Professor Crew, but in each instance the amount of oestrone excreted was much below the normal level.

In twenty-three cases vaginal smears were examined, but as unfortunately only a few of these were repeated after treatment and they showed no appreciable improvement no deductions can be drawn from the results obtained.

Discussion and Conclusions

From the above table it will be seen that after a year's work only thirty-four unqualified successes, thirty-two considerable improvements, and twelve slight responses can be reported out of a total of 131 cases—on the face of it a disappointing result, which is recorded with no feeling of achievement but as an illustration of the problems which arise when conducting such a clinic.

For an accurate assessment of results it is essential that standardized routine methods of investigation should be employed for each pathological condition, and, if possible, one clinician should deal entirely with one such group. Preferably each patient should be treated throughout by the same clinician, and one line of treatment only should be followed. In the present instance the clinic grew more rapidly than was expected, and cases were sometimes dealt with individually rather than with reference to the ultimate correlation of results. In consequence a certain amount of the experimental value of the work was lost. It is obviously desirable to accept only those patients who are prepared to undergo a long and expensive course of treatment, who have had no previous endocrine therapy, and in whom, therefore, the issue is clear. On considering the amount of time involved and the expense incurred by a patient undergoing perhaps several courses of injections, it is unlikely that a high percentage of successful

results will ever be achieved with this mode of treatment, and it is indeed questionable whether it is worth while attempting to treat upon these lines cases of amenorrhoea and oligomenorrhoea in which the general health is otherwise excellent.

If the absolute efficiency of oral administration could be established many problems of hormonal therapy would obviously be solved, especially in hospital practice. Much is claimed for the synthetic preparation stilboestrol, and its recent introduction into the clinic encourages the hope of more satisfactory results in future.

Summary

A year's work in a newly established endocrine clinic is described, and reference is made to the difficulties encountered in the estimation of results.

A detailed analysis is given of the conditions treated.

The results are discussed, and various improvements in organization are considered.

My thanks are due to Miss Landau, F.R.C.S., for permission to report the work of the clinic, to Dr. A. N. Macbeth for her advice and help, and to the firms of Organon, Schering, Parke Davis, British Drug Houses, Roussel, and Paines and Byrne for their generous supplies of various endocrine preparations.

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Nova et Vetera

AN EIGHTEENTH CENTURY SMALL-POX HOSPITAL

The detailed account given below of the administration and working of the first small-pox hospital in England, and apparently in Europe, occurs, rather surprisingly, in the anonymous topographical work *London and its Environs Described*, which was published in 1761. The hospital was then situated in "Cold-bath Fields," Clerkenwell, with a subsidiary building in Lower Street, Islington.

According to Woodville (1796)* the institution called the "Middlesex County Hospital for Small-pox" had begun in 1746, as a house with beds for thirteen patients, in Windmill Street, Tottenham Court Road; and it had undergone several changes of site before the governors in 1752 purchased the "spacious building in Cold-bath Fields." The frequent moves of the charity during its first six years were due not only to the governors' desire for greater and better accommodation for infected patients and cases for inoculation, but also to the not unnatural distaste of the residents in each locality for having a small-pox hospital as a near neighbour. In at least one instance (in the Cavendish Square area) local opposition had caused the project of transferring the hospital to larger quarters to be abandoned after the new house intended for the purpose had already been purchased and equipped; while the transfer to Cold-bath Fields was actually the subject of litigation, by "the church-wardens and overseers of the poor" of the parish of St. James's, Clerkenwell, who unsuccessfully moved the Court of Chancery for an injunction to restrain the governors from receiving any infected patients at the hospital.

The building in Cold-bath Fields is briefly described in the topographical work as follows: it "is a very plain neat structure. The centre, which projects a little from the rest of the building, is terminated on the top by an angular pediment, on the apex of which is placed a vase upon a small pediment." Woodville states that the building contained six wards and 130 beds. The first presidents of the charity were the Duke of Marlborough and the Bishop of Worcester; the first physician in charge of the patients was Dr. Robert Poole, who was succeeded by Dr. Archer in 1748; the first secretary was Mr. Wm. Umfreville, Attorney. Woodville himself became physician to the hospital in 1791.

The account of the charity given in the topographical work is quoted from "the report published by the governors," evidently in 1759–60. This, as will be seen, includes not merely a discussion of its history and operation, but also a spirited defence of the practice and results of inoculation against small-pox, as then applied, with a tactful reproof to the already active opponents of this type of preventive medicine. It may be recalled that inoculation against small-pox, by the method of "variolation," had been introduced to England in 1721 through the energetic propaganda of Lady Mary Wortley Montagu, who had her daughter inoculated in London that year, having had her son so treated in Constantinople some years earlier. Variolation by more or less primitive means had, however, been practised in the East from time immemorial, and Creighton (1894)† gives an interesting account of its use as a "folk-lore" method of protection against small-pox in parts of Wales and Scotland, long before it was formally introduced to the medical profession in London. As practised in England in the eighteenth century, it was a closely similar clinical procedure to vaccination, but, since vesicle fluid or crust material from an actual, though mild, case of human small-pox was used to inoculate the subject, he developed the disease itself, usually in a comparatively slight, or "varioloid," form. Sometimes, when the infective material used for the inoculum was taken from an inoculated case of the disease at an early stage (Sutton's method), the attack produced in the subject was *too* slight, or even abortive, and it failed to give subsequent immunity. Variolation with minor technical modifications continued to be practised in England until it was gradually replaced by vaccination, as the result of Jenner's experiments, published in 1798. The advantages of vaccination are clear, but there is, nevertheless, evidence in the report quoted below, as well as in the works of Woodville and other eighteenth century writers, that the previous method of inoculation, with the virus of true small-pox, was a public health measure of some importance in its day.

Text of the Report

Stripped of the proud and generous rhetoric of the eighteenth century, the report of the "Middlesex County Hospital for Small-pox" of 180 years ago would bear a remarkable resemblance to one on the activities of a well-administered charity organization of our own time. There are passages, too, which recall to an amusing extent the sense, and even the phrasing, of some of our modern official or semi-official publications dealing with public health matters. I have modernized the spelling of a few words and condensed the very open paragraphing of the original account, but otherwise the quotations are intact.

"This excellent charity was instituted in the year 1746, supported by a subscription then made by several noblemen, gentlemen and ladies, who were desirous that a charity useful in itself, and so beneficial to the public, might be begun near this great metropolis, there not being any hospital of this kind in Europe. The relief of the necessitous under that severe, nauseous, and frequent distemper, the small-pox, is a work of charity so evidently attended with many beneficial circumstances, as well to the public as to the unhappy objects, that it is in reality not a little strange that the establishing a fund for such a charity should be a design of no longer standing. It is universally agreed that, amongst all distempers to which Providence has made the human body liable, there is none so

* Woodville, W. (1796). *History of the Inoculation of the Small-pox in Great Britain*, London.

† Creighton, C. (1894). *History of Epidemics in Britain*, Cambridge.

afflicting, so alarming, or which demands such careful, speedy, and continual assistance as the small-pox; to which the inferior sort of people are at least equally liable with those in a higher sphere of life, though utterly unable to support themselves under so dreadful a malady, or to procure the necessary means for their recovery.

"As this disease is so frightful, even in its first appearance, and at the same time contagious and almost inevitable, families of all degrees are thrown into the utmost confusion when it invades any person amongst them, let his or her station be what it will. To keep a servant in such a condition is, generally speaking, exceedingly inconvenient; to thrust them out of doors under such circumstances, always inhuman, commonly fatal. How agreeable, therefore, must the information prove to all considerate and charitable persons, that for removing of these difficulties, for securing private families, and for the preservation of the wretched individuals labouring under this disease, there is established an hospital for the small-pox, where persons of both sexes, and of all ages, may be carefully provided for, both as to physic and diet, and properly attended in that calamitous condition; and this at a very easy expense to the governors, who by their charitable contributions support the fund for so glorious and so compassionate an undertaking, which only to mention is to recommend. A needless pomp of words would rather obscure than illustrate this design, the utility and humanity of which, all, who have the smallest attention or tenderness, cannot fail to comprehend.

"As what has been said sufficiently shews, how well adapted a charity this is, in respect to such as are afflicted with this disease in the natural way; so the other part of the scheme, which has a tendency to preserve our species from the ravages of this infectious malady, by rendering it less malignant and less destructive, in the way of inoculation, deserves likewise public approbation and effectual encouragement. The objections that have been made against this practice are founded rather in an aversion to novelty, however useful, than in an adherence to reason and experience. The strange imputation that a well-established method of preserving many lives is an attempt upon the prerogative of the Almighty will make no impression upon any who consider that the same thing may be urged against exhibiting medicines at all, either sanative or preventive, and the extraordinary methods that are often necessary to be made use of, to stop the progress of any particular disease. The benefits of inoculation appear every year, by fresh trials, greater and more certain. This dreadful, this destructive distemper is thereby rendered mild and manageable, and becomes rather a purgation of the body from the latent seeds of an expected disease, than creating a disease itself. It delivers people from those apprehensions with which, till they have had the small-pox, they are always haunted. It frees them from the objections that are continually made to their being received into any family while they remain exposed to the disease in the natural way. It gives them courage to enter into the service of their country, either by land or sea; and protects them, while in that service, from the risk of being carried off, for want of those accommodations which camps and ships rarely supply.

"To all these, if we add the general and great consideration of preserving so many lives, which may evidently arise from these different ways of having the disease (for upon a general calculation, twenty-five or thirty die out of one hundred and fifty patients having the distemper in the natural way, and only one out of this number when inoculated), it will appear that this is a thing of very high importance; and that it is not easy to name an undertaking more laudable in itself, or more beneficial in its consequences, than the making a provision that those who really stand in the greatest need of this preservative, and yet from their low, though useful, stations in life are precluded from it, should be rescued from a condition equally injurious to them and to society. But as the world will be often divided in sentiments, in matters of such a nature; so, by the constitution of this charity, due care is taken that the intentions of such well-disposed persons as shall contribute to any branch of it shall be punctually answered. For they may direct their benefactions to be bestowed upon such persons only as are infected with the natural small-pox; or, if they judge the promoting inoculation the more beneficial, they may confine their gift thereto; or, if given without any distinction, it will be applied to the general fund, both for natural small-pox and for inoculation.

"To these considerations, it is proper to add one circumstance, which, duly considered, cannot but have great weight with all who have any feeling for their fellow-creatures in distress; which is that it is an hospital in aid of all other hospitals, being calculated, by its very constitution, to receive those miserable creatures whom the rules of all other charities expressly and prudentially exclude. As this useful and necessary charity loudly calls for further assistance, may it not be justly hoped that many pious and compassionate hands will bountifully contribute to the support, continuance, and enlargement of a design which reason, good policy, humanity, and religion so powerfully recommend?

"This hospital consists of two houses at a due distance from each other, in airy situations. That for preparing the patients for inoculation is in the Lower street, Islington; and that for receiving them when the disease appears, and for the reception of patients in the natural way, is in Cold Bath fields. Stated general courts are held half-yearly, to wit, in April and October, or within ten days before or after each of those months; notice of which is sent to each governor, as well as publicly advertised. Two presidents, four vice-presidents, and a treasurer are annually elected out of the governors. A house committee of thirteen governors is chosen half-yearly, who meet the first Thursday in the month at ten in the forenoon at the hospital in Cold Bath fields, and the other Thursdays at Child's coffee-house in St. Paul's Church yard, at five in the afternoon, to transact the business of the hospital; at which meetings all governors present have a vote, and their attendance will be esteemed a favour. A Physician and Surgeon attend the hospital without fee or reward. There are a Secretary, two Apothecaries, a Messenger, Matrons, proper Nurses, etc. . . . No fee, reward, or gratuity to be taken from any patients, tradesmen, or other persons, on account of the hospital, on pain of expulsion."

Patients for Inoculation

The next few paragraphs define the qualifications, rights, and duties of governors, and the privileges of subscribers. The report continues:

"Every person destitute of friends, or money, and labouring under this melancholy disease, or desirous of being inoculated, is a proper object of this charity. Patients in the natural way are received every day; but enquiry must first be made if there is room, to prevent the danger and expense of a disappointment. Patients for inoculation are received about eight times in the year,* of which timely notice is given in the Public Advertiser, men and boys at one time, and women and girls at another, alternately; and the governors are desired to be careful in recommending none but those who are really necessitous, as a want of that care will be an injury to proper objects. Governors are desired to send their recommendations as soon as signed to the apothecary at the house of preparation, in Islington, which will be by him immediately entered on the books, and when the turn of such person so recommended comes for admittance, a letter will be sent for his or her attendance, which, if punctually observed, they will be admitted. If any persons omit to attend according to their turn on the admission days, they will be excluded, and cannot have the benefit of this charity without first obtaining a new recommendation.

"There is no charge attending the admission of patients for inoculation, but for patients in the natural way, a deposit of one pound and sixpence, to answer the expenses of burial in case of death, or to be returned to the person who paid the same, when discharged the hospital. For the sake of the patients, and for fear of spreading this dangerous infection, it is necessary to forbid strangers to visit them; and therefore, it is hoped that the affection or curiosity of particular persons will not be offended at this unavoidable precaution. Proper dresses are provided for the patients, and worn by them in the hospital, while their own clothes are fumigated with brimstone, which is always done before their discharge.

"The sums received for the support of this hospital since its foundation in 1746 amount to £18,926. And there have been received into the house for the natural way from the 26th of September, 1746, to the 25th of March, 1759, 3,946

* Woodville gives an explanation of this somewhat infrequent admission of patients for inoculation. He mentions that "a preparatory course of medicaments and diet for one month was constantly enjoined upon the patients," who were kept in the house of preparation for that course. They were then all inoculated upon the same day, and remained there for fourteen days more, until the disease had developed, when they were transferred to the main hospital. Thus the complete business of inoculating a group of patients took about six weeks (apart from the duration of the disease itself), and the governors thereafter (very properly) thought it necessary thoroughly to "clear and ventilate" the house of preparation before the next group was admitted. The building was kept empty for seven to eight days while it was being ventilated.

patients, of which 2,916 have been cured; a very great number, considering the fatality of this distemper, and that most of them were adults, often admitted after great irregularities, and some when past cure. But what appears much more extraordinary, out of 131 who were inoculated before the 31st of December, 1751, only two died, one by worms, who did not appear to have them before the inoculation, and the other apprehended to have first caught the distemper in the natural way. From that period till the 25th of March, 1759, the number of inoculated amounts to 1,567, out of which only four have died. An astonishing proof of the advantages of inoculation!"

I am indebted to Professor M. Greenwood, F.R.S., and to Mr. Wilfred A. Marsden, Keeper of Printed Books at the British Museum, for help in tracing some of the historical references in the opening paragraphs of this paper.

F. H. K. GREEN.

THE BIRTHDAY HONOURS

The Honours List, issued on the occasion of the celebration of His Majesty's birthday, included the names of the following members of the medical profession:

Baronetcy

ROBERT HUTCHISON, M.D., Hon. F.R.C.P.Ed., Hon. LL.D. Ed. and Birm., Hon. D.Sc.Oxon., Hon. M.D.Melb. President of the Royal College of Physicians of London. Consulting Physician to the London Hospital.

G.C.V.O.

Sir JOHN WEIR, K.C.V.O., M.B., Ch.B. Physician to the King and Physician-in-Ordinary to Queen Mary.

K.C.B. (Military Division)

WILLIAM PORTER MACARTHUR, C.B., D.S.O., O.B.E., M.D., Hon. D.Sc.Belf., F.R.C.P.Lond., F.R.C.P.I., D.P.H., D.T.M. and H., Lieutenant-General, late R.A.M.C. Honorary Physician to the King. Director-General, Army Medical Services, the War Office.

PERCIVAL THOMAS NICHOLLS, C.B., M.R.C.S., L.R.C.P., Surgeon Vice-Admiral R.N. Honorary Physician to the King. Medical Director-General of the Navy.

K.B.E. (Military Division)

ALBERT VICTOR JOHN RICHARDSON, C.B., O.B.E., M.B., B.Ch., D.P.H., Air Vice-Marshal R.A.F. Honorary Surgeon to the King. Director of Medical Services, Air Ministry.

Knighthood

RUPERT BRIERCLIFFE, C.M.G., O.B.E., M.D., D.P.H., D.T.M. and H., Colonial Medical Service. Director of Medical Services, Nigeria.

EDWIN JOHN BUTLER, C.M.G., C.I.E., D.Sc., LL.D., M.B., F.R.S. Secretary to the Committee of the Privy Council for Agricultural Research and Secretary to the Agricultural Research Council.

ROBERT ERNEST KELLY, C.B., M.D., F.R.C.S. Professor of Surgery in the University of Liverpool. Senior Honorary Surgeon, Liverpool Royal Infirmary.

THOMAS DRUMMOND SHIELS, *M.C.*, M.B., Ch.B. Chairman of the Joint Standing Committee for Educational Work of the Non-political Empire Societies in London. Medical Secretary, British Social Hygiene Council.

C.B. (Military Division)

HENRY HORACE ANDREWS EMERSON, D.S.O., M.B., Major-General, late R.A.M.C. Late Director of Hygiene, War Office.

IAN MACPHERSON MACRAE, C.I.E., O.B.E., M.B., Major-General I.M.S. Honorary Physician to the King. Deputy Director of Medical Services, Eastern Command, India.

C.M.G.

RALPH ROYLANCE SCOTT, *M.C.*, M.B., B.S., D.P.H., Colonial Medical Service. Director of Medical Services, Tanganyika Territory.

CHRISTOPHER JAMES WILSON, *M.C.*, M.D. For public services in Kenya.

C.I.E.

FREDERICK JASPER ANDERSON, *M.C.*, M.B., B.S., F.R.C.S., Lieutenant-Colonel I.M.S. Professor of Surgery, Medical College, Calcutta, Bengal.

ROBERT FORRESTER DOUGLAS MACGREGOR, *M.C.*, M.B., Ch.B., Lieutenant-Colonel I.M.S. Residency Surgeon, Hyderabad (Deccan).

C.B.E. (Military Division)

ERNEST MARSHALL COWELL, D.S.O., T.D., M.D., F.R.C.S., Colonel Territorial Army. Assistant Director of Medical Services, 44th (Home Counties) Division, Territorial Army.

LEONARD DARBY, M.B., Ch.B., Surgeon Captain R.A.N.

ROGER ERRINGTON, *M.C.*, T.D., M.D., Colonel Territorial Army. Assistant Director of Medical Services, 50th (Northumbrian) Division, Territorial Army.

ALEXANDER HOOD, M.D., Lieutenant-Colonel and Brevet Colonel (temporary Colonel) R.A.M.C. Deputy Director of Medical Services, British Forces in Palestine and Transjordan.

C.B.E. (Civil Division)

ARTHUR MARCELLUS DE SILVA, F.R.C.S., Senior Surgeon, General Hospital, Ceylon.

O.B.E. (Civil Division)

BIJETA CHAUDHURI, M.B., B.S., F.R.C.S., L.R.C.P.Lond., Major I.M.S. Senior Medical Officer, Port Blair.

KENELM HUTCHINSON DIGBY, M.B., B.S., F.R.C.S. Ho Tung Professor of Clinical Surgery and Professor of Surgery in the University of Hong Kong. For medical services in Hong Kong.

GEORGE ALEXANDER CLARENCE DOUGLAS, M.S., M.B. For social welfare services in the Commonwealth of Australia.

HUGH ARROWSMITH GRIERSON, *M.C.*, M.B., B.S. Senior Medical Officer, H.M. Prison, Brixton.

ALEXANDER SYDNEY JOSKE, M.D., Ch.B. President of the Medical Board, State of Victoria.

HENRY RICHARD RISHWORTH, F.R.C.S., L.M.S.Madras. Principal Medical and Health Officer, Great Indian Peninsula Railway.

REGINALD HUNT TOOTILL, M.B., Ch.B. For political and public services in Urmston, Manchester.

DONALD PERCY WAILLING, M.R.C.S., L.R.C.P. Commissioner and Medical Officer, Virgin Islands.

ERNEST WATT, M.D.Glas., D.Sc., F.R.C.P.Ed., D.P.H. Medical Officer, Department of Health for Scotland.

MONTAGUE HAROLD WAY, M.R.C.S., L.R.C.P., J.P. For political and public services in Portsmouth.

M.B.E. (Military Division)

EUGENE AVRON COTTON, D.C.M., Lieutenant (Senior Assistant Surgeon) Indian Medical Department.

DONALD ROSS, T.D., M.B., M.R.C.P.Ed., Major R.A.M.C., T.A.

WALTER STEWART, M.B., Ch.B., Captain R.A.M.C.

M.B.E. (Civil Division)

RAI BAHADUR RABINDRA NATH BANERJI, M.B., B.S. Medical Practitioner, Allahabad, United Provinces.

ALLAN LESLIE GREENWAY, M.R.C.S., L.R.C.P., Indian Medical Department. Medical Officer and Quarantine Medical Officer, Kuwait, Persian Gulf Residency.

RADHA KRISHNA, M.B., B.S., D.P.H., D.T.M., D.T.H., D.M.R.E., T.D.D. Medical Superintendent, Silver Jubilee Tuberculosis Hospital and Tuberculosis Clinic, Delhi.

UNA FRANCES MARIE MORTON, M.D., B.S., D.T.M. and H., M.R.C.O.G., Women's Medical Service. Principal, Women's Medical School, Agra, United Provinces.

Kaisar-i-Hind Medal (First Class)

GRACE STAPLETON, M.D., B.S., F.R.C.O.G., Women's Medical Service. Professor of Obstetrics and Gynaecology, Lady Hardinge Medical College, New Delhi.

THE ABORTION REPORT

LEGAL, MEDICAL, AND SOCIOLOGICAL ASPECTS: CLARIFICATION OF LAW RECOMMENDED

Almost exactly two years after its appointment the Interdepartmental Committee on Abortion, which was charged to inquire into the prevalence of abortion and the law relating thereto, has published its report.[1] There is a minority report with one signatory, and to various sections in the majority report several members attach reservations.

Mr. Norman Birkett, K.C., was chairman of the committee of fifteen. Members of the medical profession on the committee were Dr. T. Watts Eden, Sir Comyns Berkeley, Sir Ewen Maclean, Lady Ruth Balfour, Dr. G. C. M. M'Gonigle, Mr. W. B. Purchase, coroner for North London, and, for a short time, Lady Forber (Dr. Janet Lane-Claypon). Evidence was taken from fifty-five witnesses. Dr. W. Paterson, Professor R. M. F. Picken, and Professor James Young, with the Deputy Secretary, testified for the British Medical Association. Evidence was also given by the Ministry of Health, the Royal College of Obstetricians and Gynaecologists, the Medical Women's Federation, the Midwives Institute, the Eugenics Society (Lord Horder), and many other bodies.

The report, which is addressed to the Home Secretary and the Minister of Health, adopts the same definition of abortion as the B.M.A. committee on medical aspects, which reported in 1936—namely, the expulsion of the products of conception from the uterus at any period up to the twenty-eighth week of pregnancy; that is, before the time of viability. Abortions are classified into three types: (1) spontaneous, a natural abortion due to some condition of disease in the mother or foetus or produced unintentionally from some other cause; (2) therapeutic, abortion induced in good faith by qualified medical practitioners when satisfied that continuance of pregnancy would endanger the mother's life or result in serious impairment of her health; and (3) criminal, abortion caused by deliberate interference with the course of pregnancy in circumstances which do not afford lawful justification.

Prevalence and Effects

The prevalence of abortion is difficult to estimate. Even when abortion is spontaneous the nature of the case is such that its occurrence will not readily be disclosed, and when it is due to criminal interference there is every inducement to conceal it. The deaths attributed to abortion in England and Wales in 1937 numbered 307, and those associated with abortion but not classed to it 104, the first number being considerably lower than any recorded during the last twelve years, and the second number higher than any recorded during the last seven. The B.M.A. committee estimated that from 16 to 20 per cent. of all pregnancies ended in abortion, and the Interdepartmental Committee has the general impression that this may be a near approach to the true figure. This would make the annual number of abortions between 110,000 and 150,000.

The number of therapeutic abortions is not statistically significant. Of the remainder, perhaps 60 per cent. may be spontaneous, and 50 per cent. due to illegal interference. Spontaneous abortions should be lessening in number in view of improved methods of diagnosis and prevention and the development of health services. The committee gathers from medical, police, and social circles an opinion that criminal abortion has recently become more frequent. There is evidence that the prevalence is higher in urban than in rural areas, that the proportion of abortions to pregnancies is higher among unmarried than among married women, and that abortion is relatively more common among mothers of the higher age groups. Women who have once undergone criminal abortion tend to resort to it again. Spontaneous abortion has a tendency to recur in certain women.

[1] H.M. Stationery Office. 2s. 6d. net.

The immediate risk in a spontaneous abortion is slight, especially if it occurs early in pregnancy. In considering the dangers of criminal abortions a distinction is drawn between those induced without lawful justification by medical practitioners and those which are self-induced or procured by persons without medical qualifications. In the former case, of course, the risk is much smaller than in the latter.

"The unqualified abortionist, ignorant of anatomy and of the elementary principles of surgery, and carrying out the operation in secrecy and haste, is liable to use a dangerous degree of force, and to misdirect the instruments he employs, with the result that they may pierce or otherwise injure the wall of the vagina or the wall of the uterus, or perforate the bladder. The wound so caused may rapidly become infected. . . ."

Even when the woman escapes or recovers from immediate complications, trouble may be manifested at a later period. It is emphasized that the occurrence of severe sepsis after spontaneous abortion is relatively uncommon, and medical opinion is unanimous that when severe septic infection follows an abortion there is a presumption of criminal interference.

Motives and Methods

The motives which impel women to act in or consent to defiance of the law are analysed. There is overwhelming evidence that an economic reason is predominant. In cases of poverty and unemployment it may be felt that the task of maintaining another child would be intolerable. Among people of moderate or comfortable means the desire for abortion may arise from a feeling that to bring up another child would lower the standards to which the family had become accustomed. Often the condition of health of the woman cannot be separated from her economic circumstances. Some pregnant women —not, from the evidence submitted, a large number— desire abortion because they are afraid of the dangers of childbirth. The position of the unmarried woman who becomes pregnant is attended with peculiar difficulty in view of the social stigma. Almost any circumstance which may render life more difficult or the future more uncertain is reflected in disinclination to carry a pregnancy to term. The committee is satisfied that purely selfish motives predominate in only a small minority of cases.

Two methods of procuring abortion seem to have a high proportion of success. One is the insertion of some instrument or foreign body into the pregnant womb. Sticks of slippery elm bark (the sale of which the committee recommends should be prohibited) enjoy a wide popularity, but almost anything capable of insertion has been inserted, often with disastrous consequences. The second method is the use of a syringe to inject some hot or irritant fluid. The most popular of all methods, but successful to only a very limited extent, is the oral administration of a drug. The committee was informed that many women take drugs as a routine precautionary measure whenever menstruation is delayed and pregnancy is feared. Among the drugs used because of their supposed properties as abortifacients are certain vegetable substances, especially apiol, pennyroyal, and quinine, and the salts of certain metals. The so-called "female pills," sold ostensibly for the cure of menstrual irregularities, may have some of these drugs among their ingredients. But there is evidence that abortion may be produced by drugs which ordinarily have no abortifacient action, if they are taken in large enough quantities to be severely toxic. The intramuscular or intravenous injection of drugs for this purpose is not common; more common—though again with small chance of success—are attempts to cause abortion by violent physical exertion.

Criminal Abortion and Professional Secrecy

Criminal abortionists include at one end of the scale the qualified medical practitioner who makes a trade of illegal operations, and may receive as much as 100 guineas as a fee, and at the other end the abortionist with no pretence

to medical or surgical knowledge, often plying his or her trade under the most appalling conditions, and perhaps receiving half a crown. A fairly common fee appears to be two or three guineas.

"It would be optimistic to suppose that the one or two medical practitioners who have been convicted in recent years . . . are the only doctors who have transgressed the law in this matter; and statements made to us do not leave any reasonable doubt that there are others ready to perform the operation at a price, without further question. . . . From one or two quarters it was suggested that there are a few consultants of standing who are ready to perform the operation at a very high figure, but such expressions of opinion could not in the nature of things be supported by definite evidence. Reference was also made in evidence to nursing homes under medical supervision which specialize in criminal abortion, and though there is reason to believe that such homes exist, there was no evidence to suggest that they are numerous."

The committee is unable to accept a proposal that an unrestricted discretion to perform the operation should be given to the medical profession as a solution of the problem of criminal abortion.

In 1914, in a charge to a grand jury at Birmingham, Mr. Justice Avory declared it to be the legal duty of the doctor, when he knew that criminal abortion had been procured or attempted, to communicate with the authorities. This declaration from the bench led to much discussion in medical circles. The British Medical Association in 1915 passed a resolution that the medical practitioner should not in any circumstances disclose voluntarily, without the patient's consent, information obtained from the patient in the exercise of his professional duties; and the Royal College of Physicians of London passed a similar resolution in the following year.

The present committee appreciates the grounds upon which members of the medical profession desire to avoid disclosing knowledge so obtained, and does not support a proposal that a clear obligation should be imposed by statute upon practitioners to notify all abortions, but it emphasizes that closer co-operation by doctors with the police would help to terminate the career of professional abortionists, and it urges practitioners to obtain the patient's consent to the matter being reported.

"We desire, moreover, to state that there is, in our view, a risk that the medical profession may press too far their claim that they are precluded by their duty to their patients from volunteering information to the police; the interests of the community in general, and even of the patient herself, may be allowed to be obscured by undue insistence upon the importance of maintaining the confidential relation between doctor and patient, when information might well be given without, in effect, any real breach of confidence."

Six members of the committee—two-fifths of the total number—including Lady Baldwin and Sir Comyns Berkeley, make a reservation, declaring their disagreement with the view that it is not normally the duty of a practitioner who is in possession of indisputable evidence of the occurrence of criminal abortion to notify the police; they think the legal duty of the doctor in such circumstances was properly stated by Mr. Justice Avory, and that the doctor's duty to co-operate in the exposure of criminal abortionists should be pursued, even if the consent of the patient is not obtained.

Advertisement and Sale of Abortifacients

The committee considers it out of the question to impose a general restriction on the sale of all the substances which are offered as abortifacient drugs, but oil of savin, ergot, and compounds of lead with fixed oils might well be included in the Fourth Schedule to the Poisons Rules, which would mean that their retail sale could only be upon a prescription by a registered practitioner. It is also recommended that the lead contained in diachylon plasters, which is sometimes made into abortifacient pills, might be brought within the restrictions imposed upon substances in Part I of the Poisons List and the First Schedule. The inclusion of apiol and pennyroyal in the Poisons List should be considered. The case of quinine is different, and great inconvenience would be caused if it was scheduled as a poison. To deal with "female pills" the committee recommends some action along the lines of the Medicines and Surgical Appliances (Advertisement) Bill, 1936.

Attention is also drawn to oestrogenic preparations, which are of proved value in the treatment of menstrual disorders. Research on animals has shown that these preparations are capable of preventing a fertilized ovum from embedding itself in the uterus. It is suggested that the development of research on this subject should be watched by the Ministry of Health and the Home Office. If expectations that hormonal preparations may be effective in terminating pregnancy in its early stages are realized, it will be necessary on sociological grounds to control and restrict their sale.

Birth Control

It is generally acknowledged that if a perfectly reliable contraceptive, harmless and simple to use, were available, and if the wider issues could be disregarded, the spread of birth control knowledge would solve the problem of criminal abortion. But there is no method which can be regarded as completely reliable. In certain circumstances, the committee thinks, the wide dissemination by public health authorities of birth control advice within the framework of the present law would alleviate the difficulty. But it points out certain possibilities whereby the spread of contraception might even intensify the evil. In any case the committee cannot blind itself to the wider issues. The progressive decline in the national birth rate and its relation to the widespread extension of the use of contraceptives have to be borne in mind. The committee cannot accept the contention that the use of contraceptives to avoid pregnancy is fundamentally and in all circumstances wrong. It is prepared to allow full opportunity for obtaining the most reliable contraceptive advice, most conveniently given at clinics staffed by doctors trained in the technique, in the case of every married woman whose health is likely to be detrimentally affected by pregnancy, and it would not limit the medical grounds by too narrow or rigid an interpretation. But while there are legitimate reasons for which contraceptive advice can properly and indeed ought to be given, the committee cannot on general principles recommend that the public health services should be utilized for the unrestricted dissemination of such advice.

Two members of the committee, Dr. Watts Eden and Lady Ruth Balfour, make a reservation, declaring that in their opinion it is desirable in the public interest that medical officers in charge of clinics maintained by local authorities should be permitted to give birth control advice and treatment to married persons who desire to limit or space their families for economic reasons.

When Induction is Legal

As stated in our leading article last week, on one issue, the most important of all, the committee is unanimous—namely, that subject to certain statutory safeguards the law should be clarified to make it plain that the induction of abortion is legal when the operation is carried out to save the life of the woman or to prevent her health from being seriously impaired. Hitherto therapeutic abortion, if induced when continuance of pregnancy involves no danger of death, but when the practitioner is satisfied that abortion is necessary if serious ill-health is to be averted, could be legally justified only if the expression "preserving the life of the woman" was not rigidly construed as "preserving the woman from death." It was given the liberal interpretation by Mr. Justice Macnaghten and the jury in the case of Rex *v.* Bourne, but there is no certainty that another judge and jury might not interpret it narrowly.

"In our view there should be no question that a medical practitioner who terminates a pregnancy with the object of averting serious injury to health is acting lawfully."

The committee dismisses a suggestion that a schedule should be added defining precisely the medical conditions which would legally justify induction. The variety of such conditions makes it impossible to classify them with the precision necessary for an Act of Parliament. Some room must be left for the exercise of discretion. One desirable safeguard is considered to be the requirement that the practitioner shall have consultation with one or more medical colleagues, whose concurrence is necessary before a pregnancy is terminated. Such an obligation could not be universal, because cases must be allowed for in which delay for the purpose of consultation would be dangerous to the patient, but such urgent cases are rare If it could be laid down that abortion should not be induced except with the concurrence of a specialist it would be still more desirable. This is no reflection on the ability of the general practitioner. If the pregnant woman suffered from heart disease, for example, it would be most natural to have the opinion of a cardiologist; if from some obstetric condition, the opinion of an obstetrician, and so on. But it is not thought practicable to draft a statutory provision to this effect. All that can be done is to require that a second concurring medical opinion based upon examination of the patient shall be obtained before pregnancy is terminated. In cases where the woman is unable to afford payment the question of requiring the local authority to meet part or the whole of the cost of obtaining the second opinion should be considered.

Notification of Abortion

It is felt that the value of obligatory consultation would be enhanced if the obligation were also placed upon the practitioner to notify every therapeutic abortion to the medical officer of health of the local supervising authority under the Midwives Acts, the records being treated as confidential, except that the chief officer of police should have access on request. It is not considered desirable to place on the medical officer of health the uneasy responsibility of communicating with the police if his suspicions are aroused in a particular case. Two members of the committee, Mr. de Montmorency and Dr. M'Gonigle, cannot associate themselves with this recommendation. An unscrupulous practitioner could conceal any evidence of illegality on the form of notification, so that the measure would not be effective, and this association with the police would arouse a feeling of mistrust and suspicion towards public health services.

A number of witnesses urged on the committee that notification of spontaneous and criminal abortion should also be required, on the ground that it would be advantageous for statistical, medical, and police purposes. The committee, however, feels that no system of notification would be likely to yield statistics which are at all complete or of scientific and public health value. As for the point that it would ensure early provision of medical treatment and after-care, the notification could only be given by someone in professional attendance, and in such cases the assistance and care are already available for the woman. As for police purposes, even if compulsory notification was likely to be of greater assistance to the police than it anticipates, the committee—

> "viewing the wider social aspects of the matter, [would] feel many misgivings about making a recommendation in favour of a system which had a police implication. . . . One result of the institution of a system of compulsory notification of abortions would be . . . to deter women from seeking medical advice until their condition had become serious or even desperate."

The same six members of the committee who made the previous reservation concerning medical privilege, however, urge the notification of every case of abortion, whatever its cause. In their view it should be incumbent upon every registered medical practitioner to report to a central medical authority every case of abortion which comes to his notice.

The committee makes it plain that the scheme it outlines for an amendment of the law to make unmistakably clear the position of the practitioner relates to abortion proper—that is, to pregnancies terminated before the viability of the foetus (normally before the twenty-eighth week). The existing statute deals with "miscarriages," an expression which appears to include the artificial emptying of a pregnant uterus at any time. The legal position of a medical practitioner who induces premature labour does not fall within the committee's reference.

Abortion for Non-medical Reasons

Witnesses appeared on behalf of the Abortion Law Reform Association, which advocates that abortion should be made available to any woman who so wishes, provided that there are no medical contraindications. The committee regards such proposals as "contrary to religious and ethical teaching and to the fundamental principles on which our society is based." Any considerable extension of the grounds on which abortion might lawfully be procured would detract from the sanctity of life, hasten the decline of the population, and prove an added temptation to loose and immoral conduct.

Special considerations attach to the subject of pregnancy following rape (on which the Bourne case turned). It is agreed that there is widespread sympathy for the proposal that the woman or girl pregnant as the result of rape should be permitted by law to have her pregnancy terminated. But considerable practical difficulties arise on attempting to formulate a scheme. Is termination of pregnancy to be allowed by law only when the offence of rape has been proved? The ravisher might not be identified, or if he were identified and charged, and the operation had to be delayed until after his trial, it might then be too late to induce abortion without grave risks. On the other hand, abortion cannot be justified merely on the strength of an allegation that pregnancy is due to rape. Some witnesses suggested that any girl who became pregnant before the age of 16 and did not desire her pregnancy to go to term should be legally entitled to have it terminated, and as the law seeks to protect from sexual intercourse girls under that age this might seem a natural corollary. But while it is true that it is not open to the accused man to plead consent in such a case, in practice consent is not infrequently given by the girl, who understands quite well what she is doing.

> "We should hesitate to recommend that a girl who willingly entered into sexual relations with the knowledge that she might become pregnant should be permitted by law to have abortion procured. In our view such a proposal would be a direct temptation to loose conduct among young girls."

Of course, such termination might still be lawful on the ground of the physical or mental condition of the girl. The same considerations apply in the case of pregnancy as a result of incest. It is felt that it would bring the law regarding incest into contempt if one of the parties to the crime should be freed from a consequence which was directly to be anticipated.

As for abortion for eugenic reasons, the factors which enter into the transmission of hereditary diseases are so complex that it can never be said that the child of a given union will exhibit inherited abnormalities, and therefore the committee is not disposed to support the suggestion that eugenic reasons should be legally recognized as grounds for induction.

The final pages of the report are concerned with social and educational considerations. A brief chapter deals with spontaneous abortions and the necessity for the provision in each area of facilities for ante-natal care and treatment. Another chapter deals with facilities for the treatment of cases of abortion. Witnesses on behalf of the Ministry of Health stated that more accommodation for in-patient treatment was needed in almost all districts. A comparatively small minority of welfare authorities do not make any provision in their maternity and child welfare scheme for the general practitioner to have at his disposal the services of an obstetric consultant in any urgent or difficult case which is being treated at the

patient's home. The occasional difficulty in securing the services of a nurse in such cases is also mentioned, and it is suggested that an amendment might be made to the Midwives Act, 1936, requiring that the service of midwives which a local supervising authority provides must be adequate to ensure that a sufficient number are available to attend cases of abortion which need skilled nursing.

The Minority Report

The minority report is signed by Mrs. Ernest Thurtle, wife of the Labour M.P. for Shoreditch, who differs from her colleagues on several points. She urges that one important and significant factor which impels women to act in defiance of the law has been omitted from the committee's considerations—namely, a high degree of fertility. Unless this aspect of the problem is considered honestly and courageously little advance will be made. She also puts on record her opinion that it is not difficult for any woman of moderate means to find a medical man willing to relieve her of an unwelcome pregnancy, regardless of the state of her health. Such facilities are not available to poorer women, who are driven to take the risks of less skilful treatment at the hands of non-medical abortionists. She supports the view that the existing powers of local authorities should be extended to allow birth control information to all women who desire it. To refuse to extend birth control facilities to those who desire to space their families, on the ground that such a course would lead to a further fall in the birth rate, seems to her a counsel of despair. In her view the law should be amended to make the induction of abortion lawful when pregnancy has resulted from rape, unlawful carnal knowledge, or incest, or when hereditary disease is likely to be inherited, or when the woman has had four pregnancies continuing as far as the viability of the foetus.

One of the appendices to the main report is a summary of the law on the subject in sixteen foreign countries, and Mrs. Thurtle calls attention to the fact that Sweden and other Continental countries "have recently revised their legislation to bring it into line with modern thought."

BICENTENARY OF QUEEN CHARLOTTE'S

The bicentenary of Queen Charlotte's Maternity Hospital was celebrated by a festival dinner, held at the Savoy Hotel on June 7, with H.R.H. the Duke of Kent in the chair. The hospital was founded in 1739, though it was not until 1809 that it was named after Queen Charlotte, consort of George III, the first of six queens to be its patron. The dinner was in aid of the bicentenary fund, towards which £6,125 in cheques and promises was contributed at the tables. The new development of Queen Charlotte's at Hammersmith has cost half a million, of which £160,000 has still to be raised. Half the £160,000 is for the nurses' home, and when the home is ready the final move will be made from the old Marylebone Road building to the new centre, which will have 200 beds.

The Hospital, Past and Present

The DUKE OF KENT said that Queen Charlotte's had a special claim to consideration as a pioneer hospital along several lines: it was the first to take in unmarried mothers, to look after mothers in their own homes, to offer training facilities, and to institute separate labour wards. In its early history it owed a great deal to the Duke of Sussex, sixth son of George III, who persuaded his mother to be the patron, and for thirty-four years applied his energies to the organization and expansion of the institution, during which time the in-patients increased sevenfold and the out-patients were trebled. Since the foundation of Queen Charlotte's over 275,000 babies had been born under its care, and 15,000 students and nurses had been trained. Its present staff included twenty-seven consultants, six resident medical officers, and 150 nurses.

Mr. EARDLEY HOLLAND said that he regarded the hospital as his spiritual home. Every man or woman who practised obstetrics, whether as consultant or specialist, general practitioner or midwife, owed a debt of thanks to Queen Charlotte's because the research work carried out there had greatly increased the safety of childbirth and correspondingly diminished the anxieties associated with practice. The function of the hospital was not merely to look after women in their confinement—it was an institution of national importance as a great teaching and training and research centre. As regards the training of young specialists, in his own early days there was a great lack of facilities in London, and the only way to study obstetrics was to become resident medical officer at Queen Charlotte's. Of those who had been resident medical officers at least 25 per cent. later became obstetric specialists. Queen Charlotte's was the staff college of obstetricians.

An Obstetrical Rebirth

The rebirth of Queen Charlotte's in outer West London (Mr. Eardley Holland continued) would be an obstetrical event of the highest importance. The mother when she heard the cry of her newborn child would also hear, not the motor-buses of Marylebone Road but the blackbirds—or, more probably, the owls—of Ravenscourt Park. In the main block of the new hospital, nearing completion, every internal arrangement had been provided for the comfort, convenience, and safety of the patients. The wards would be small, with not more than six beds in each, and the beds could be made private by curtain partitions. Pay-beds would be installed for people of moderate means. The private ward section would be one of the wings of the main block.

Finally, in speaking of the isolation hospital and research laboratories on an adjacent site, which have been built and functioning for some years, Mr. Holland referred to the contribution made by Queen Charlotte's to the prevention of puerperal infection. Dr. Leonard Colebrook was in charge of this work. From 1931 to 1935 the death rates at the isolation block, taking all cases of haemolytic streptococcus infection, averaged 22.8 per cent. During the years 1936–8, since the introduction of sulphanilamide, the annual average death rate for a similar number of cases a year—round about 100—had been 5.3 per cent. Dr. Colebrook's results had interested the whole world, and he had been asked to instruct workers from other countries. The fact that the maternal death rate in 1938 was the lowest figure ever recorded in this country was due to no small extent to the work done at Queen Charlotte's isolation block and research department.

Sir WILLIAM JOWITT, K.C., paid the tribute of a layman to the work which Queen Charlotte's was doing. The name for him combined the tradition and wisdom of age with the vision and enthusiasm of youth; it was more than a hospital, it was a centre which radiated new ideas and methods of treatment. He pleaded for a liberal response to the appeal for the new nurses' home, which is under construction at the hospital site. Until the home, with its 180 single bedrooms, centralized kitchens, and rooms for occupation and leisure, was completed the move from the old hospital in Marylebone Road could not take place.

RESEARCH IN BLOOD DISEASES

The Trustees of the Lady Tata Memorial Fund announce that, on the recommendation of the Scientific Advisory Committee, they have made the following awards for research in blood diseases with special reference to leukaemia, in the academic year beginning October 1, 1939:

Grants for Research Expenses.—Dr. Jorgen Bichel (Aarhus, Denmark), Dr. Julius Engelbreth-Holm (Copenhagen), Dr. Maurice P. J. Guérin (Paris), Professor Karl Jármai (Budapest), Professor James McIntosh (London), Professor Eugene L. Opie and Dr. Jacob Furth (New York), Dr. Joachim Weinbeck (Breslau).

Part-time Personal Grant and Grant for Research Expenses.—Dr. Werner Jacobson (Cambridge, England).

Whole-time Scholarship.—Dr. Edoardo Storti (Pavia, Italy).

Reports of Societies

CONGENITAL ABNORMALITIES

The Cavendish Lecture of the West London Medico-Chirurgical Society was delivered at Kensington Town Hall on June 9 by Professor J. B. S. HALDANE. The president of the Society, Dr. MAURICE SHAW, was in the chair. Professor Haldane's subject was "Congenital Disease," and his lecture covered very similar ground to his Lloyd Roberts Lecture before the Royal College of Physicians, fully reported in these columns at the time (*Journal*, November 26, 1938, p. 1100). He expounded with many examples, as he had done in his former lecture, the theory of genes and the occurrence of mutation, also some of the curious facts of sex-linked inheritance.

Professor Haldane went on to make some remarks about congenital diseases which were not mainly due to genes, and took as an example congenital pyloric stenosis. It was not known why this occurred, but it was much more frequent in firstborn than in later children. It was not due to the age of the mother, and so far as could be ascertained the primipara of 30 was as likely to produce a child with pyloric stenosis as the primipara of 17. In the same way a number of grosser abnormalities, such as absence of brain, were far more common among first-born children. All that could be suggested was that the pre-natal environment was not quite so good for the first-born as for subsequent offspring.

A condition in which the age of the mother did appear to count was mongoloid imbecility. In the statistics of 217 families which included one or more such imbeciles a very large proportion of the mothers were in the late forties. Evidently the mother's age contributed to the frequency of such imbecility, but it was also shown that the condition was not a result of the exhaustion of frequent pregnancies. That there was a genetic element in this case was evidenced by the fact that if in one family a woman had a mongol among her children, her sister was much more likely to have such a child than the average.

Inheritance of Mental Defect

The lecturer added a few words about the inheritance of mental defect. Little was known about mental defect until Penrose at Colchester recently published an analysis of the causes of the defect in a large group of affected persons. He found, for example, that in 4 per cent. of the defectives the cause was syphilis, in 2 per cent. injury at birth or afterwards, in 2 per cent. inflammation—meningitis or encephalitis—in 7 per cent. some abnormality of the ductless glands, in 5 per cent. mongolism, and so on, but in 24 per cent. he could find nothing wrong, except the extraordinary stupidity. Only 8 per cent. of the parents were registered mental defectives, so that even if the mentally defective population in one generation was sterilized it would only prevent a fraction of the next generation of mental defectives from being born. There was evidence of a good deal of consanguinity among the parents. While it was true that there were a certain number of well-defined conditions which were inherited in a straightforward way, in something like 90 per cent. of the cases the mechanism of inheritance was not clearly known. Until it was possible to classify mental defect it would not be possible to say in detail how it was inherited.

He also mentioned some studies which were being undertaken in University College laboratories on congenital disease in mice and rats. It was believed that the study of these diseases in animals could do two things: it could furnish a kind of background against which to consider human diseases, and it could demonstrate that congenital diseases might be completely cured. Rats suffering from congenital dwarfism, on being injected with anterior pituitary extract, grew to a normal size. Quite a number of animal congenital diseases were as a matter of fact curable. In principle congenital diseases in the human were as curable as infectious diseases, and it was up to the medical profession to find out how these diseases could be prevented by eugenic measures, and how they could be cured by therapeutic methods.

Local News

INDIA

Plague Prophylaxis in India

The report of the Haffkine Institute for 1937 states that, as in previous years, the limited resources available have been almost entirely devoted to the routine production of prophylactic vaccines. An increase in the incidence of plague in India, 33,460 attacks as against 23,873 in 1936, demanded correspondingly large quantities of plague vaccine, and 3,973,011 c.cm. were issued during the year. Cholera, typhoid, and meningococcal vaccines were also issued in large quantities, the last-named employed as an experimental measure with a view to collecting data which might throw light on its value. The examination of rats and other rodents of Bombay city is another routine procedure which must make heavy demands on the Institute. During the year 703,850 rats were received, and 186,987 dead rats were examined. None was found to be infected, and no deaths from human plague are recorded in Bombay during the period under review. In addition to this formidable programme of routine work sixteen original papers were published during the year, and more than twenty pages of the report are devoted to research work. In the continued study of the natural resistance of rats to plague infection a number of rats were obtained from Dharmsala, a hill-station in the Punjab, where no plague epidemic has been known to have occurred during the present pandemic. It was found that an appreciable percentage of these animals resisted experimental plague infection. In other batches of rats (*Rattus rattus*) from Simla in the Punjab and Berhampur in Bengal, two stations where little or no plague epidemic has been recorded, more than 30 per cent. of the animals resisted experimental infection. Further support is thus lent to the hypothesis that the resistance shown by rats in places where plague epidemics, and therefore plague epizootics, have occurred is due to the fact that plague epizootics destroy strains of rats susceptible to plague infection, leaving behind naturally resistant strains.

Health Training in the United Provinces

The latest annual report of the Director of Public Health of the United Provinces devotes much attention to the ways in which the knowledge of the principles of health and the prevention of diseases is being diffused through the population of the United Provinces. Thus the Education Department has included the teaching of hygiene in the curriculum for training colleges, normal schools, high schools, Anglo-vernacular and vernacular schools, one to two hours each week being devoted to this subject in the schools, and the lectures being given by trained teachers; in the schools as well as in the training colleges the school health officers are required to deliver special lectures to the teachers about infectious and general diseases. Extra-curricular courses are also held for the certificates of the St. John Ambulance courses in first aid, home nursing, home hygiene, and the Mackenzie school course in first aid and sanitation for boys and girls up to Standard VIII. Many of these lectures are illustrated by lantern slides and films provided by the hygiene

publicity bureau. The school health officers organize divisional and provincial ambulance competitions in conjunction with the officers of the Education Department. In certain places refresher courses in hygiene are organized by the school health officers for teachers. There is no fixed curriculum for the teaching of boys in primary schools, but by co-operation of the staffs of the district medical officers of health and the Junior Red Cross groups much interest in public health work has been aroused among them. Propaganda material relating to the prevention of blindness is being distributed among the pupil teachers in the training schools, and various health pamphlets and posters are supplied free to all the groups. A book, *The Nutritive Value of Indian Foods,* was supplied in 1937 to all school health officers, and lectures on this subject have been given. The number of Junior Red Cross groups rose in that year from 4,576 to 5,025, and the United Provinces Branch of the Indian Red Cross Society provided a large number of village-aid medicine chests. The annual competitions of both the Indian Red Cross Society and the St. John Ambulance Brigade were well supported. In addition to this training of school children, adult education in health measures is proceeding intensively. Exhibitions are being held in various centres. Literature on the prevention of disease is supplied to the Lucknow University, the Engineering College at Roorkee, and is distributed also by the Chief Inspector of Factories in the United Provinces. Arrangements were made for the instruction in health measures of prisoners in jails. A special leaflet on beriberi was distributed in Benares and Allahabad, where the disease was then prevalent. The hygiene publicity bureau continued its active supervision of village-aid work and the medical inspection of school children. The United Provinces branch of the Red Cross Society uses a special van to organize training in the more isolated areas. Voluntary grants for these various forms of health education are made by local authorities.

ENGLAND AND WALES

King Edward's Hospital Fund

The Duke of Kent, presiding at the council meeting on June 9 of King Edward's Hospital Fund for London, announced that several grants outside the ordinary distribution had been made to certain hospitals to assist them to recover their financial equilibrium. He referred particularly to a grant of £15,000 towards the amalgamation of the two throat hospitals in London. As regards finances of the hospitals as a whole, the aggregate deficits in 1938, he said, exceeded the surpluses by about £150,000. Since the annual turnover of the hospitals was nearly five millions, a deficit of £150,000 could not be considered large, especially as it was only the third deficit since 1921. Despite the present tension, competing appeals for new objects, and higher taxation, the total income showed a small increase, but the expenditure had increased rather more rapidly. "This evidence of the stability of the voluntary system," he said, "is one of the facts that make it so widely recognized as being well worth preserving." The Duke also referred to the special services which the King's Fund is increasingly undertaking on behalf of the hospitals. The emergency bed service has been working for nearly a year and has already arranged admittance to hospital for some 8,000 patients. On the suggestion of the Voluntary Hospitals Committee for London and in conjunction with the College of Nursing a central bureau for the recruitment of nurses is being established. It is hoped thereby to increase the number of recruits to the nursing profession and to assist girls who wish to become nurses to find which hospital is most likely to suit their requirements. The Duke also announced that a committee of the King's Fund, under the chairmanship of Mr. Bernard Docker, has put forward proposals for a provident scheme which will insure in the case of people of moderate means against the financial hardships imposed by serious illness. Some details of this scheme are given in our *Supplement* columns this week.

Harveian Society

The Buckston Browne Annual Banquet of the Harveian Society of London was held on June 8, with Dr. A. D. Morris, the president, in the chair. In proposing "The Society," Mr. Justice Humphreys remarked that according to the booklet he had received with his invitation the society was founded in 1831, and seemed to have taken the name of Harvey for advertisement, as it was first called the "West London Medical Society." He noted that among the founders of the society was Dr. Marshall Hall—a name that was of great interest to him. Dr. Hall was one of the first medical men to deprecate the practice of bleeding. The president read to the company the text of a telegram of congratulation to the King on his birthday. At least once a year, he said, the majority of the members had an opportunity of meeting each other, due to the generosity of Sir Buckston Browne, who they all hoped would be spared for many years to come. They had read with pleasure in the medical press about the reception of Sir Alfred Webb-Johnson's Syme Oration in Australia, and they were glad to see with them their Harveian Lecturer, Mr. Tudor Edwards. The toast of "The Guests" was proposed in an elegant speech by Dr. H. L. Glyn Hughes. In reply, His Eminence the Cardinal Archbishop of Westminster said he thought there was something very mysterious about the profession of doctors; it must mean that doctors had the wisdom of the serpent, which was their symbol. Referring to connexions between Medicine and the Church, Cardinal Hinsley said that he had been president for ten years of the college in Rome to which Thomas Linacre had acted as warden. Linacre had founded the Royal College of Physicians and the Chairs of Medicine and Physic at Oxford and Cambridge, and ended his life as a priest. Mr. G. D. Roberts, K.C., also replied for the guests, and in a very witty speech said that they of the Old Bailey liked to think they stood between the Church on the one hand and Medicine on the other, situated as they were almost half-way between St. Paul's and St. Bartholomew's Hospital. In the novels of that great Londoner, Dickens, he remarked, there was not one decent lawyer or doctor. Ending on a more solemn note, he said they must learn the lessons common to the two professions of Law and Medicine—respect and honour for the great tradition they inherited, the spirit of loyalty and comradeship, and the virtue of kindness and understanding of their fellow creatures.

Health of School Children

The annual report of the Board of Education for 1938 (Cmd. 6013, H.M. Stationery Office, 3s. 6d.) states that one of the weakest spots in the School Medical Service—the percentage of children accepting dental treatment—shows an improvement attributable to some extent to the health campaign of 1937–8. The percentage of children found to require dental treatment who were in fact treated rose from 62.6 in 1937 to 65.5 in 1938. The Board is at present surveying the adequacy of the provision of free meals in all areas in England and Wales, and it is hoped that this survey, when complete, will result in a substantial increase in the number of necessitous undernourished children whose nutrition is being restored by means of free meals or milk. The number of public elementary school children receiving free meals or milk, or both, increased from 206,182 in 1931–2 to 614,806 in 1937–8. The number of bottles of milk distributed free increased from 17 million in 1931–2 to 97 million in 1937–8. Great importance is also attached by the Board to the provision of school canteens, especially in rural areas, at which children may receive nourishing dinners on payment of a moderate charge, and necessitous undernourished children may receive free meals. Since January, 1936,

over 10,000 acres have been acquired for playing fields for children in elementary or secondary schools, and proposals for 486 new gymnasiums have been approved. At the end of 1938 the medical staff employed by local education authorities was equivalent to 728 whole-time medical officers, an increase of sixteen over the previous year. The school dental staff represented the equivalent of 783 whole-time dentists, compared with 747 in 1937. The number of authorities who have approved schemes for providing orthopaedic treatment has increased during the last five years from 233 to 270, and these authorities now cover nearly 90 per cent. of the public elementary school population. All authorities, with the exception of the Isles of Scilly, now provide school clinics.

National Radium Trust

The National Radium Trust met in London on June 8 at the Privy Council Office, with Viscount Runciman, Lord President of the Council, in the chair. In addition to subjects related to their normal business, the trustees had under consideration questions arising out of Section 3 of the Cancer Act of this year. This section provides that the Minister of Health may lend money to the Trust, on such conditions as the Treasury may determine, to enable the Trust to purchase not only radium but also other radio-active substances and apparatus and appliances required for radiotherapeutic treatment; and that the principal of and interest on any sums so lent shall be charged on the undertaking and all the revenues of the Trust. The Trust, £150,000 of whose funds was contributed by public subscription in 1929, welcomes gifts and bequests of all kinds in furtherance of its objects, including trusts subject to special conditions; it is expressly authorized to accept these under the Royal Charter granted by King George V in 1929.

New Hospital for Nervous Disorders at Oxford

The Park Hospital for Functional Nervous Disorders, Old Road, Headington, Oxford, which was opened on June 1 by Sir Farquhar Buzzard, Regius Professor of Medicine in the University, represents a new departure in the provision of hospital facilities in Oxford and district. The hospital, formerly known as Highfield Park House, has now been adapted for the treatment of twenty-six patients suffering from functional nervous disorders. No provision has hitherto existed in Oxford and district for the in-patient treatment of psychoneuroses, and the new hospital will, therefore, help to fill a serious gap in the health services of the city. The Park Hospital is owned by the authorities of the Warneford Hospital, and will be administered as a separate unit. It is not under the Lunacy or Mental Treatment Acts, however, and will be run on similar lines to those of a general hospital or nursing home. No formalities regarding admission will be required. The fees are moderate, and special concessions are being made to a limited number of cases from the Neurological Clinic of the Radcliffe Infirmary. The committee of the Warneford, which has been responsible for the opening of the new hospital, has been advised throughout its deliberations by Dr. R. G. McInnes, who will be the medical director of the new hospital.

Port Health Conference

The National Association of Port Health Authorities held its conference in Middlesbrough last week. In his presidential address Alderman S. A. Sadler declared that the association was doing a vital service, and since its formation in 1898 had contributed effectively to the strengthening of health services at the ports. The medical committee of the association in its report drew attention to the unsatisfactory conditions of coasting vessels and recommended that investigations be continued into conditions of comfort and hygiene on these craft, which compared unfavourably with vessels in the foreign-going trade. Dr. J. Greenwood Wilson, honorary secretary, said that a meeting of his committee with shipowners and seamen had been held, and the report when published would be of tremendous help, quite apart from the question of any change in the construction of coastwise vessels. Mr. M. T. Morgan (Port of London) referred to difficulties that had arisen in connexion with the importation of livers for the manufacture of therapeutic extracts. These animal products, or organs of animals, were not intended for human consumption as foodstuffs, and did not come within the scope of imported food regulations. His authority believed that these should be certified as foods; otherwise there was no method of control. Other speakers stressed the importance of securing Government action to ensure that all livers and other animal products imported for the manufacture of drugs should be certified as fit for human consumption. The conference decided to enter into further negotiations with the Ministry of Health and to support the protest of the City of London Port Sanitary Authority.

IRELAND

Tuberculosis Conference in Belfast

Lord Craigavon, Prime Minister of Northern Ireland, will open the twenty-fifth annual conference of the National Association for the Prevention of Tuberculosis, which is being held in the College of Technology, Belfast, from June 29 to July 1, under the presidency of the Marchioness of Titchfield. The Lord Mayor and the Lady Mayoress are giving a reception for the delegates in the Belfast City Hall, and a Government reception will be held in Parliament Buildings, Stormont. The following subjects have been arranged for discussion: I, Problems of organization and local administration of tuberculosis schemes—(*a*) general administration; (*b*) arrangements for the induction of artificial pneumothorax and the after-care of patients so treated. II, Tuberculosis in the adolescent—(*a*) medical, (*b*) sociological. III, Architectural problems in connexion with tuberculosis institutions—(*a*) hospitals and sanatoria, (*b*) dispensaries and clinics. The third day will be devoted to demonstrations and tours, including a clinical *x*-ray and pathological demonstration by Dr. James Shaw, Chief Tuberculosis Officer of the Belfast Corporation, at the Central Tuberculosis Institute, and visits to Graymount Hospital, to Whiteabbey Sanatorium, and to Foster Green Sanatorium, near Belfast, where demonstrations on collapse therapy and culturing tubercle bacilli will be given. An opportunity will also be provided for a visit to Dublin and the Cappagh Sanatorium, Finglass. Doctors who desire to attend the conference may obtain cards of invitation on applying to the Secretary-General of the N.A.P.T., Tavistock House North, Tavistock Square, London, W.C.1.

SCOTLAND

Princess Margaret Rose Hospital, Edinburgh

The Lord High Commissioner and Lady Gilmour visited the Princess Margaret Rose Hospital for Crippled Children, Edinburgh, on May 30, where they spent some time chatting to the children on the treatment balconies and watching treatment in the swimming pond.

Mr. W. A. Cochrane, speaking, at a luncheon, on the care and cure of the crippled child in the south-east of Scotland, said that this hospital with its associated clinics was now looking after upwards of 1,500 cases in that area. It was estimated to-day that nearly 80 per cent. of crippled children could be rendered moderately or even completely fit to earn their living. The secret of success was to have a system of units in country areas

and small towns surrounding the hospital, to which cases could be sent at an early stage of departure from normal growth. Through the assistance of county councils a series of units of this kind had been formed at which a specialist could be consulted and at which orthopaedic nurses worked. The Princess Margaret Rose Hospital with its clinics provided this system, and also provided for a long stay with education of the child where this was necessary. It still remained in Scotland to secure a centre for vocational training for certain types of children.

Gray's Hospital, Elgin

A new annexe to Gray's Hospital, Elgin, erected at a cost of £20,000, was opened on May 31 by Dr. John Taylor, honorary surgeon to the hospital. The extension includes a new out-patient department with departments for *x*-ray examination and electrotherapy, and the cost has been defrayed by public subscription. The building is of two storeys and connected by passages to the main hospital.

Correspondence

Treatment of Gunshot Fractures of Lower Extremity

SIR,—I was much interested in Mr. A. Tudor Hart's articles on war surgery in Spain (May 27, p. 1099, and June 3, p. 1146). He produces important evidence and gives excellent advice on the conservative treatment of war injuries. In your issue of June 3, however, under the heading of the treatment of lower limb injuries, he made some statements in regard to which I should like to register a mild protest.

The Braun-Böhler splint, I agree, is very useful for treating fractures below the knee, but I am by no means convinced that it is always superior to the Thomas splint in treating compound fractures of the femur. Even the Hodgen splint may, I think, be found useful when handling a fracture of this bone complicated by a wound high up on the dorsal aspect. I do not wish to be dogmatic on what type of splint should be employed for these injuries, and anybody who understands the mechanical problem of these fractures can achieve his end with diverse and often quite simple apparatus. I think, however, that the suspension of one or both legs in some type of skeleton splint may simplify nursing of difficult open fractures of the thigh. When it comes to classifying splints as museum pieces and the like, I would note that the Braun splint is a direct descendant of the double inclined plane, which dates well back into the nineteenth century! Though the Thomas splint also originated in that prehistoric era, its use in various forms for fractures of the femur was not generally developed till 1915 or later.

In regard to the use of skeletal traction for fractures of the femur, its utility is unquestioned as a general principle, and the Kirschner wire appears to be the best form of skeletal traction available at the moment. In my experience, however, transfixion of the condyles of the femur, which Mr. Hart advocates, though mechanically satisfactory, has one grave drawback, and that is that in a good proportion of the cases so treated the presence of the transfixion pin or wire at this level gives rise to the development of adhesions, either within the knee or between the quadriceps and the bone. It may even give rise to infection of the joint. These complications lead subsequently to varying degrees of stiffness of the knee-joint. Limitation of movement caused in this way is extremely difficult to correct by any later treatment. I am quite convinced of the truth of this statement both from my experience of six years at a pensions hospital after the war and from my experience of the treatment of fractures in civil life.

Traction exerted through the crest of the tibia on a fracture of the femur does not strain the knee-joint until union is commencing. Traction applied to the tibia in the presence of an ununited fracture of the femur exerts its pull on the quadriceps and hamstring muscles, which are inserted near the level of pin transfixion. At this stage the lower fragment of the femur is for practical purposes floating, and no strain is imposed on the mechanism of the knee-joint. When union commences to occur in the fracture the skeletal traction can be replaced by an adhesive one in most cases, the amount of pull required to maintain alignment being at this stage negligible.

Mr. Hart says that the degree of traction should amount to 10 kg. at first. I do not think this should be accepted as sound for all conditions. If there is acute or progressive infection of the thigh the inflammatory exudate increases the tension within the aponeurotic sheath. This tension is further increased by long axis traction, and if that traction amounts to as much as 20 lb. I think it may have a deleterious action on the local defence mechanism. Further, I am sure that skeletal traction has resulted in overpulling of a good many fractures and led to delayed union.

I trust these observations on Mr. Hart's views will not be taken as in any way depreciating the very excellent results he quotes and the useful advice he gives on many practical problems of war surgery.—I am, etc.,

London, W.1, June 5. C. MAX PAGE.

Anaesthesia in War Time

SIR,—I am surprised that no mention has been made of cyclopropane for emergency anaesthesia in war time. A cylinder holding 75 gallons occupies very little space and will last approximately fifty hours. The apparatus required is not elaborate, and consists of a double yoke for cyclopropane and oxygen plus two flowmeters: it is made complete with carrying handle by Messrs. A. Charles King. With the addition of a Waters's carbon dioxide filter and rebreathing bag it is both practical and portable. The high percentage of oxygen administered with cyclopropane makes it an almost ideal anaesthetic for badly shocked patients. Personally I cannot imagine any more dangerous anaesthetic for badly injured persons than intravenous drugs or spinal anaesthesia, especially as war injuries are likely to be associated with considerable haemorrhage, with the result that the patient's oxygen reserve will be greatly diminished.

I expect the wrath of Olympus will descend upon me for making these suggestions, but I feel sure that anaesthetists who use cyclopropane regularly will testify to its value for more or less moribund patients. Moreover, it can be administered by the most simple technique and under all sorts of adverse conditions.—I am, etc.,

Newcastle-upon-Tyne, June 12. PHILIP AYRE.

Vinesthene Anaesthetic Mixture

SIR,—I was interested to read the article by Dr. F. F. Cartwright in your issue of May 27 (p. 1081).

About eighteen months ago I suggested to Messrs. May and Baker that they should lay more stress in their litera-

ture about vinesthene on the value of the mixture with ethyl ether. I had been searching for a suitable anaesthetic for infants and young children, particularly for comparatively short operations, such as circumcision, and as an inducing agent. The technical objections to chloroform disturbed my peace of mind, although I confess that I often used this agent, and I was not altogether happy about ethyl chloride. The latter seemed to me to be somewhat dangerous. It could not be used for any length of time alone, and there were sometimes difficulties in an ethyl-chloride–ether sequence. Theoretically, I believe, it is a drug whose toxicity resembles that of chloroform.

Vinyl ether seemed to have been sent direct from heaven, but there were certain drawbacks. The administration of pure vinyl ether by the open method requires a certain amount of dexterity to regulate the dosage on account of its potency, and as it has to be used from the 25-c.cm. bottle it may be costly, as the bottle, once opened, rapidly becomes valueless. Some bottles were actually empty when taken from the carton. One felt that the ampoules were a much better packing.

The mixture avoided these drawbacks. It was easier to handle and could be made up from the ampoules. If a drop-bottle marked in drachms were used, 3 c.cm. of vinesthene could be placed in it from an ampoule, and ethyl ether added to make 3 drachms of the mixture. This made calculation so simple as to be almost non-existent, and provided a very useful anaesthetic agent for the purpose I have mentioned. I found that 3 drachms of the mixture was often hardly enough, while 6 drachms was often rather more than necessary, so I suggested to the makers that vinesthene should be put up in 5-c.cm. ampoules for this purpose. I notice that this has now been done.

Messrs. May and Baker were good enough to send me a sample of the mixture for experimental purposes. This seemed very useful for hospital work, but I was not sure of its keeping qualities once the bottle had been opened. One had been led to understand that vinesthene deteriorated when exposed to the air, and I could obtain no convincing assurance that the addition of ethyl ether did much to counteract this. As I have not used the mixture for long operations I have not purchased the ready-made mixture, but make my own p.r.n.

For induction I find that I am using the pure vinesthene in a Goldman's inhaler more frequently. It is rapid in action, and the subsequent change to ether is very easy. For tonsillectomy the procedure which has been found to be very satisfactory is to induce with closed vinesthene, continue with ethyl ether until the patient is stable, and maintain the anaesthesia with intrapharyngeal gas-and-oxygen with minimal ether.—I am, etc.,

J. S. HAWES, M.R.C.S., D.A.,
June 9. Hon. Anaesthetist, Seamen's Hospital, Tilbury.

Accessory Sinus Disease

SIR,—As a medical student I was taught that the three cardinal conditions present in inflammation were swelling, redness, and pain, and that in medical terminology the affix "itis" indicates inflammation.

At the forthcoming Annual Meeting of the B.M.A. at Aberdeen the Section of Oto-Rhino-Laryngology includes in its proceedings a discussion on sinusitis in children. It is a pity that the term "sinusitis" is used in this connexion, for actual sinusitis in children is a comparatively rare condition and unimportant for discussion, as its treatment is obvious.

I have been told by recent medical arrivals from the British Isles who have studied disease of the nasal accessory sinuses that such disease is much more prevalent in Australia than in the British Isles, which on superficial consideration appears to be a remarkable and unexpected state of affairs if the statement be true, and I have no reason to doubt it, for years of practice in the specialty of oto-rhino-laryngology have impressed upon me how common is accessory sinus disease; but sinusitis is by no means such a common condition. The conclusion has been forced upon me that accessory nasal sinus disease is actually a congenital condition; its causation does not lie in infection, which when it occurs later on is a secondary occurrence; the actual cause of the sinus disease is a biochemical one, and is possibly closely related to the modern artificiality in life and food.

Two features which have been strongly forced upon my notice are (1) that this sinus disease occurs particularly in children of parents who are careful, or perhaps I should say fussy, as to their children's health, food, etc.; (2) that when a child of school age is brought to me suffering from this sinus disease, upon inquiry I find that contrary to one's expectations the child is of very good mentality and occupies a high position in class at school. These cases are a constant source of worry to the rhinologist for some years, but I am glad to state that I have now been able to see children upon whom I operated (radical antrum) at the age of 6 to 8, who at the same time had the advice as to diet, etc., of a specialist in diseases of children, and who were a source of anxiety and worry for years, are now in early adult life in good health (and with good teeth) and free from symptoms of the wretched sinus disease; whereas I believe that had they not been so treated some of them to-day would have been troubled with polyposis and ill-health.

There is a wide scope for organized research into the causation of this accessory sinus disease, and the first step is to drop the misleading term "sinusitis."—I am, etc.,

Brisbane, Queensland, May 27. ERNEST CULPIN.

Para-nitrophenol for Fungous Diseases

SIR,—In the *Journal* of June 29, 1935 (p. 1339), a letter appeared from one of us (M. E. R.) on the subject of para-nitrophenol in the treatment of ringworm. This was followed in the *Journal* of July 20, 1935 (p. 136), by a letter from Dr. O. Marriott recording the successful results he had obtained with this substance in the treatment of intractable ringworm of the foot. Last summer one of us contracted "athlete's foot," and tried para-nitrophenol with considerable success. During the winter months he recommended it to several of his friends who were suffering from this disease, and in every case (four male, one female) the trouble was cured in about three weeks.

It had been found through laboratory experiment that para-nitrophenol loses most of its efficacy as a fungicide when mixed with oil. Our treatments, therefore, have all been carried out with aqueous or alcoholic solutions. In the cases referred to here the para-nitrophenol was dissolved in 98 per cent. ethyl alcohol to make a 1 per cent. solution, which was swabbed on to the affected parts each night, using a small pad of cotton-wool. After about one week considerable improvement was effected, and in about three weeks all signs had usually vanished. It was recommended that it should also be applied whenever using communal changing rooms, and when it has been so applied no recurrence of the trouble has been found.

Para-nitrophenol forms a pale yellow solution in alcohol, and causes only slight staining of the skin and garments

with which it comes into contact. The stain is usually removed by normal laundering. In view of the increased number of young men who will be in camp this year, we would draw the attention of those having to treat this and other fungous diseases to the use of this material.—We are, etc.,

F. E. HUMPHREYS, Ph.D.
MADGE E. ROBERTSON, M.D.

British Leather Manufacturers' Research Association, London, S.E., June 8.

Halibut-liver Oil for Psoriasis

SIR,—It may be of interest to some of your readers to know that one of the worst and most persistent cases of psoriasis which I have ever known—I was myself the patient—has yielded, in three months, to three drops daily of halibut-liver oil. It may be, of course, that the improvement is only temporary and that my sorrows are not permanently removed. But the relief, temporary or other, is so great that I feel I ought to write to you about it. I tried the preparation because I noticed an improvement each year during my summer holiday—that is, in sunlight. I began with cod-liver oil, which helped me. The halibut oil was in fact bought by mistake. I found it very effective indeed.—I am, etc.,

Hampstead, June 12. R. MCNAIR WILSON, M.B., Ch.B.

Treatment of Tetanus

SIR,—In his recent article on tetanus and gas gangrene (*Journal*, May 13, p. 989) Mr. Claude Frankau very kindly refers in his bibliography to two papers of mine on tetanus. The method of using serum which he advocates, however, is quite different from that which I have used, and in my opinion is not the best. As he says, "serum is definitely beneficial by its action in neutralizing further toxins liberated from the infected area." He then recommends doses of antitoxin given by all routes on the first day, all routes except the intravenous on subsequent days until the symptoms begin to abate, and then by subcutaneous and intramuscular routes until all stiffness has disappeared.

In my experience the effect of serum given in this manner is no better than when a single large intravenous dose is given as early as possible after the onset of symptoms, while the effect of repeated injections, particularly intrathecal, is bad for the patient in that it tends to excite reflex spasms. After experience of the method which he advocates I abandoned it in favour of a single large intravenous dose of antitoxin (200,000 international units), and I have used this in my last forty cases. To continue to give subcutaneous and intramuscular injections of serum when the reflex spasms have ceased and only tonic rigidity remains is quite unnecessary. This rigidity, although it may last as long as five weeks, gradually passes off, even when no serum is given. This I have observed in twenty-five cases which recovered, and none showed any tendency to relapse without it. The question of expense is also important. A moderately severe case treated by Mr. Frankau's method would require approximately 1,200,000 international units (600,000 U.S.A. units), and would cost at hospital prices approximately £40, compared with £6 13s. 4d. when the single intravenous dose is given. The cheaper method appears to give at least as good, and in my opinion a better, chance of recovery.

Mr. Frankau refers to the use of avertin, which is perhaps the most useful drug for controlling reflex spasms, but he does not mention that continuous warmed nasal oxygen should always be given with avertin to stop cyanosis and lessen the risk of respiratory complications. This point is so important that I venture to stress it.

None of the cases to which I refer had been modified by prophylactic antitoxin after the wound was received.—I am, etc.,

Cambridge, June 7. LESLIE COLE.

Importance of Blood Examination

SIR,—It is undeniable that successful treatment depends entirely upon accurate diagnosis, and medical treatment must concentrate upon the use of clinical diagnostic methods. Owing to the great advances in medicine and surgery since the beginning of the century, the present age has become more than ever an age of specialism. The majority of students are, however, still destined to engage in general practice, which in most cases includes a large panel.

Careful and thorough examination entails an expenditure of time and trouble for which the payment in money seems to be quite inadequate. Its importance, however, is not generally recognized by the public, many of whom are satisfied with a cursory examination if a name is given to the complaint and a bottle of medicine supplied. If a patient gets worse he may be sent to the hospital, or, if his circumstances permit, a "specialist" may be consulted. Even in hospital practice it is not unusual for the assistance of the pathologist or of the radiologist to be asked for before any real attempt has been made to arrive at a diagnosis.

No single clinical method of examination can give more information of vital importance than a complete blood count, which should include the number of red corpuscles and leucocytes per c.mm., and the percentage of normal amount of haemoglobin. This should be followed by the examination of a blood film, preferably stained by the Leishman-Romanowsky method and examined with an oil-immersion objective, which will reveal the size and shape of the red cells, the presence of nucleated corpuscles, and the relative abundance or deficiency of platelets. A differential count of the leucocytes will show the relative proportion of the different classes, especially of the polymorphs, and a polynuclear (Arneth) count the "drift to the left." Not only is a blood examination necessary for the diagnosis of the secondary or primary anaemias, including pernicious anaemia, aplastic anaemia, splenomedullary or lymphatic leukaemia, and other blood diseases, such as polycythaemia, etc., but a careful leucocyte count and examination of a stained blood film will be of great assistance in the diagnosis and prognosis of many infections, such as pyogenic diseases, including appendicitis and pneumonia, typhoid fever, and many other diseases, while according to Cooke and Ponder any infection, even the slightest, causes a "drift to the left."

Agranulocytosis attracted a great deal of attention in the medical press of this country and abroad a few years ago, and is still responsible for a number of deaths. There are very few, if any, diseases (with the possible exception of tetanus) in which an early diagnosis is of more vital importance. Unless recognized before agranulocytosis has become complete and secondary infection has already begun, treatment is almost hopeless, but with an early diagnosis and prompt and efficient treatment the majority of cases should recover.

Jackson and Parker in 1935 gave an analysis of 103 cases (*New Engl. J. Med.* for January, 1935) many of which came under their own supervision; of the 103 patients only seven

had leucocyte counts of 2,000 or more, with more than 5 per cent. granulocytes, and only one of these died. Of those who had a total leucocyte count of less than 1,000 the mortality was 55 per cent.; thirty of these had a total count of below 500, and seventy-four had complete agranulocytosis. Of sixteen cases recorded in the *Lancet* and *British Medical Journal* from July, 1934, to July, 1936, only three recovered (one of these three owed his recovery to the spontaneous evacuation of toxic material from a nasal sinus); the mortality was 82 per cent. In the majority of these cases the diagnosis was made too late for effective treatment. Three were only diagnosed shortly before death upon admission to isolation hospitals as supposed cases of diphtheria.

At the present time agranulocytosis is more often recorded when resulting from treatment of acute bacterial infections by sulphanilamide or one of its derivatives, though the number of cases is still relatively very small in comparison with the number treated. In a case recorded quite recently (*Lancet*, 1939, **1**, 1208) the recommendation is made that "since agranulocytosis cannot be definitely diagnosed without a white cell count, frequent blood examinations should be made in all cases where the drug is continued for more than a week and large doses are given." All would agree with the soundness of this advice, and since the new chemotherapeutic treatment has given such startlingly successful results there seems to be every probability that it will to a great extent supersede other methods of treatment, with a possible increase in the number of cases of agranulocytosis.

Surely it would be of the greatest advantage if every medical practitioner were competent to conduct a thorough blood examination and were willing to spend the time required. Why should not medical students be instructed to undertake complete blood examinations and include them in the notes of every case allotted to them as clinical clerks? Many would find it an interesting and fascinating occupation.—I am, etc.,

HERBERT H. BROWN, M.D., F.R.C.S.

Worthing, June 5.

The After-coming Head in Breech Delivery

SIR,—I do not propose to discuss the causes and prevention of impaction of the after-coming head, but in two recent cases of breech presentation with extended legs to which I was called this emergency occurred during delivery under my supervision. In each case I was fortunate enough to prevent death of the foetus by means of a manœuvre which I cannot find mentioned in any of the few books I have searched. In my opinion the cause of death in this condition is usually (1) the cord being compressed, thus cutting off placental "respiration," and causing inspiratory efforts by the increase of carbon dioxide in the child's blood—respiratory movements are also stimulated by exposure of the baby's wet body to the air unless the usual precautions are taken; (2) respiratory efforts are useless as the child's face is smothered by the soft tissues of the maternal perineum; (3) if the child manages to expand its lungs they fill with amniotic fluid or blood, and death ensues from drowning.

The procedure I adopted, after failing to get the head through by abdominal pressure, forward and upward traction, and so on, was to insert two fingers of the left, or free, hand between the child's face (as far as the mouth) and the mother's perineum and separate the fingers, thus allowing foetal fluids to run out and, still more important, providing an air-way to the baby's mouth. In each of these two cases the abortive attempts at inspiration by the baby were changed at once into full, useful expansion of the lungs and lusty crying. In each case it was eventually necessary to apply forceps to effect delivery, and I am sure that without this manœuvre the inspiratory efforts of the two infants would have come to an untimely end.—I am, etc.,

Herne Bay, June 5. QUENTIN F. EVANS.

Xenopus Test for Pregnancy

SIR,—Professor F. A. E. Crew in his article on biological pregnancy diagnosis tests in your issue of April 15 (p. 766) proposes that the xenopus test should be known as the "Hogben test," and states that it was in Professor L. Hogben's laboratory in Capetown that it was first shown that this anuran might with advantage be used for this test. He refers to a note by Hogben to the Royal Society of South Africa in March, 1930. In this communication—"Some Remarks on the Relation of the Pituitary Gland to Ovulation and Skin Secretion in *Xenopus laevis*"—an important contribution to the comparative physiology of reproduction is made by showing that injection of extracts of the anterior lobe of the pituitary of the ox into the female *Xenopus laevis* produces extrusion of the ova through the cloaca within eighteen hours. There is no suggestion, however, that xenopus might be used as a test animal for the presence of an anterior-pituitary-like hormone found in the urine of pregnancy.

In 1933 xenopus was first shown to be a suitable animal for pregnancy diagnosis by Drs. H. A. Shapiro and H. J. Zwarenstein in the Physiological Laboratory at Capetown, long after Professor Hogben had left South Africa. The results were communicated to the Royal Society of South Africa in October, 1933. Further papers by these authors appeared in *Nature* (1934, **133**, 762) and the *South African Medical Journal* (March 23, 1935). In the latter paper the technique of the test is very fully described.

The authors look on this xenopus test as a modification of the Aschheim-Zondek test, and have not considered it necessary to label it with any name. If, however, Professor Crew wishes to bring the nomenclature of this test into line with that of the mouse and the rabbit tests, it should obviously be referred to as the "Shapiro-Zwarenstein test."

Although the name of Hogben is associated with a great deal of valuable research on xenopus, there is no justification whatever for attaching it to this pregnancy test. Since there seems to be considerable misconception about the history of this test it is necessary to make the position unequivocally clear in the interests of scientific accuracy.—I am, etc.,

University of Capetown, June 2. J. W. C. GUNN.

Reconstruction in Vaginal Atresia

SIR,—In your issue of May 27 (p. 1113) Mr. H. P. Pickerill joins issue with Dr. V. S. Counseller of the Mayo Clinic for describing as new a method of reconstruction of the congenitally absent vagina which he himself claims to have performed in 1922. Mr. Pickerill is quite correct in stating that I suggested the particular technique of the method used by Dr. Counseller, but he is wrong in feeling that either of us ever claimed priority for the use of Thiersch grafts in this situation. If Mr. Pickerill will refer to the articles by the late Mr. J. Bright Banister and myself in the *Journal of Obstetrics and Gynaecology of the British Empire* (**45**, No. 3, 490) and *Zentralblatt für Gynäkologie* (1939, **63**, No. 1) he will see that priority for

the use of free grafts in vaginal atresia goes to Heppner (1872), Abbé (1898), or Flynn (1915), and that the same technique was subsequently elaborated by Kirschner and Wagner, Bürger, Monod, and Iselin. In fact this technique is to-day known as Wagner's operation in Germany and Monod's operation in France. I am sure that my friend Dr. Counseller is too well versed in the literature to make any such claim in America.

I answer Mr. Pickerill's complaint merely to point out that the all-important difference between his method and mine is not concerned with the use of free grafts. The basis of it can best be indicated by the following abridgement from my papers.

There is no doubt that neither of these formidable operations (tubed pedicle and intestinal reconstruction) would ever have become popular if the simpler method of free skin grafting had not been unsatisfactory. That this is so is indicated by the records of partial or complete contraction occurring in a high percentage of the reported cases. Comparison of the methods used with those adopted in the successful performance of cavity grafting elsewhere in the body convinced me long ago that what was wrong was not so much the principle of the method as the manner of its performance. It is one thing to line a subcutaneous cavity with thin skin, but an entirely different matter to maintain the patency of the cavity once the grafts have taken. It is here that I introduced the principle of continuous dilatation over a period of six months, a principle with which Mr. Pickerill will be familiar in the eyesocket, nasal cavity, and buccal sulcus, and which again is attributed to Esser. My sole claim is that the addition of this step to the free-graft technique has been to re-establish a discredited operation and to make it a practical proposition. Since its introduction I have carried through to a successful conclusion fourteen cases of this troublesome condition without contraction and with no mortality. Any free-skin-graft-inlay technique in which the dilating force is removed *in ten days* will, in a series of cases, give most depressing contraction, even with the help of labial flaps at the outlet. One can only congratulate Mr. Pickerill on having escaped this result in the case he so ably describes, and I would further add my regrets that I missed his contribution in reviewing the literature.

—I am, etc.,

London, June 9. A. H. MCINDOE.

Adult Serum in Measles

SIR,—In his excellent paper on the use of adult serum in measles Dr. L. R. Lempriere (June 3, p. 1136) makes the very germane statement that the epidemic was a mild one; in my opinion this rather tends to vitiate the possible prophylactic effects of the serum injections. In 1932 a girls' school experienced an outbreak of measles complicated by such a high proportion of middle-ear infections from haemolytic streptococci that the term was summarily brought to an end in March. In 1938 this same school had an outbreak of measles which began in January. Altogether 137 cases occurred; no prophylactic injections were given, and there were no complications whatever. This happy result may perhaps be attributed to: (*a*) a less virulent form of the disease; (*b*) that every case was isolated in a cubicle, so that no cross-infections could occur; (*c*) admirable nursing—each child being sponged at least three times during the twenty-four hours throughout the febrile period. Measles may be such a devastating disease in a school community that no effort should be spared to lessen its severity; at the same time it would appear that the 1938 vintage was not a good example for the success of prophylactic inoculation.—I am, etc.,

Sherborne, June 6. J. WHITTINGDALE.

Haemorrhage after Appendicectomy

SIR,—I read with considerable interest Mr. Geoffrey Parker's report of his case of post-appendicectomy haemorrhage (*Journal*, June 10, p. 1174). It appears to me that there is no necessity to postulate traumatization of the bowel to account for it. With the accepted technique of ligature and purse-string the pocket of peritoneum in which the stump is embedded is inevitably infected. No bacteriologist would accept carbolization as anything but a gesture. In all probability the infection subsides as quickly as it arises, but there may be occasions when it progresses to suppuration and the tiny abscess discharges by the path of least resistance through the devitalized stump into the caecum; clinical evidence of this would not attract any great attention in the post-operative period. In the instance under discussion it may be that the unusual complication of secondary haemorrhage drew attention to a sequence of events which is rather commoner than we suspect.—I am, etc.,

London, W.1, June 9. STEPHEN POWER.

Control of Functioning

SIR,—In 1926 you published an article of mine in which I endeavoured to draw the attention of the medical profession to the new vista which had been opened to the science and art of medicine by the work and writings of F. Matthias Alexander in the hope that persons better qualified than I might be incited to investigate them.

I vaguely indicated the experimental research by which Alexander established the generalizations he had then reached through experiments as subtle as have ever been devised by any scientist in any field. I pointed out that one of his conclusions was that "Man is a psycho-physical whole and does not consist of mind and body, or of head and trunk and legs and lungs and heart and liver," but is an organism which thinks and moves and functions as a whole—or, rather, moves and functions and thinks, for motion is primary. I did not then point out that Alexander had established that there is a primary centre of control of functioning, probably because I did not at that time recognize this. Alexander established that this control was connected with the relationship between the head and the neck, and between the head and neck and the torso—a discovery which was independently rediscovered by Professor Magnus of Utrecht.

The effect on the profession in this country has been small. Greater attention has been attracted to Alexander's work in America, which is manifested, however, mainly in the lay press; but recently Professor G. E. Coghill, formerly professor of comparative anatomy in Philadelphia, has published some of the results of his researches on the "problem of behaviour," and he confirms Alexander's work almost in detail, though his work was entirely independent of Alexander.

In his studies on the Amblystoma he finds, for instance, that "behaviour develops by the expansion of a primarily integrated total pattern of action and the individuation of partial patterns within the total pattern. . . . This is a matter of fact; whether or not behaviour in other vertebrates follows this plan of development has become a question of leading interest in the study of behaviour." Again, "The nervous system concerns itself first with the integrity of the individual and only later makes provision for local reflexes."

Exigencies of space prevent me from quoting further, but the following is an extract from a letter from Coghill which I am permitted to use: "He [Alexander] has grasped the same scientific principles through practical work with human

beings that I have found through my investigation of detailed anatomy in the lower forms."

These as well as other passages from his published works confirm me in the view I placed before you in 1926 of the first-rate importance of Alexander's work. It seems to me that he has anticipated much of the work done by Coghill, as he anticipated that done by Magnus, through his observations of and experiments with the highest of the vertebrates—man himself. He has devised a technique by which he is able to teach others an improved use of their psycho-physical mechanism. During the past few years he has trained a number of teachers in this technique; he has also set up a small school in which he has children educated with this technique basic to all their education. Unfortunately the demand for the school has come as yet mainly from parents of children who suffer from obvious defects; but his success in dealing with these defects is striking.

Permit me to repeat that Alexander's methods are worth the study of the medical profession; but time is passing and the study should not be delayed.—I am, etc.,

York, June 5. PETER MACDONALD.

Chemotherapy of Gonorrhoea

SIR,—I have read from time to time with amazement of the high percentage of "cures" various men have obtained with M & B 693 in the treatment of gonorrhoea. Unfortunately, using the same drug and the same quantities, I have not obtained parallel results. I have treated acute and chronic gonorrhoea in males and females with a low percentage of cures. I have certainly found that the discharge ceases, or is very slight, after fourteen days' treatment, and then one does not seem to advance further. Those patients whose discharge has ceased still have a "plus" or "doubtful" complement-fixation test. Those who have slight morning discharge or stickiness of the meatus show microscopically pus cells present. That in itself precludes a cure, and continuation courses do not help.

My latest amazing experience is the complete removal of a purulent Bartholin's cyst and duct, the complement-fixation test being positive ± at the time. After three weeks' intensive treatment the complement-fixation test is positive ±. At the moment I am treating several patients who have been "cured" by M & B 693, and have unfortunately passed the disease on quite innocently. Their story usually runs in this vein: "My doctor told me to take two tablets three times daily for seven days, then one tablet three times daily for another seven days, and then you will be quite well." Unfortunately the discharge apparently ceased, and they took it for granted the cure was complete. I, like many more in private practice who see perhaps more than the average number of cases of gonorrhoea, look forward to any drug or method that will clear up this disease easily, especially in old chronic cases. I hope that these experiences of mine will not damp the enthusiasts, but merely temper their enthusiasm with a little caution.—I am, etc.,

Cardiff, June 8. M. ABSÉ.

Organization of Out-patient Departments

SIR,—It may be of interest to those who read Dr. W. Arklay Steel's letter in the *Journal* of June 3 (p. 1155) on the organization of the out-patient department of Hillingdon County Hospital to know how a system of appointments for out-patients has worked in the Soho Hospital for Women. The problem is, of course, very much simpler here; only one class of case is seen and only one clinic is held at a time.

The system was introduced on January 1 of this year, and follows Dr. Steel's procedure in regard to the booking of appointments for new and old out-patients; for in-patients referred to the out-patient department on their discharge; and also as to the circularizing of general practitioners. From ten to twenty new cases and the same number of old cases are seen each day. The medical staff at each clinic consists of a consultant and two clinical assistants. The consultant sees all new cases and such old cases as are referred to him. Each clinical assistant spends half the session taking histories of new cases and seeing old patients, and half assisting the consultant with the new patients. New patients are given appointments in batches of five at intervals of half an hour, and old patients in batches of ten at the same interval. The unit of five was chosen because there happen to be five examination cubicles.

It would seem to be ideal to be able to give patients individual appointments, but in practice, where early and late arrivals have to be contended with, the "batch" system is very much simpler and, as the following figures show, does not inflict an unduly long wait on any one patient. A survey over eight consecutive days of new cases showed that the average time which these patients spent in the hospital between the time of the appointment and leaving the building was sixty-three minutes. This period included the time taken in registration, inquiry, history-taking, and in visiting the dispensary. It represents a very considerable reduction of waiting time compared with the past, when a new patient might have spent two or three hours in the hospital.

Patients tend to arrive early for appointments, and seldom come late or fail to arrive without letting the hospital know. Experience has shown that occasional early and late arrivals and absentees do not disorganize the system. The early arrival for one batch takes the place of the late arrival for the previous batch. The place of a non-arrival is filled by an old patient requiring re-examination by the consultant, though one or two spaces among the new patients' appointments are always left for these cases. The result is an unbroken and uncongested supply of patients to the doctor and a comparatively short wait for the patient. That is not to say, however, that the scheme is not capable of improvement. The hospital is greatly indebted to King Edward's Hospital Fund for much practical help and advice.—I am, etc.,

J. P. HEMING,
Secretary.

Hospital for Women, Soho Square, W.1, June 6.

The Hospitals and War

SIR,—At the commencement of hostilities the hospitals in the heart of our towns will be emptied of civilian patients and prepared to receive casualties. Casualties will arrive in plenty to find this hospital wrecked, that hospital slightly damaged, and most of them with at least half the window-glass broken. These conditions will grow worse as raid succeeds raid. Patients will be evacuated as quickly as possible, but to where? Existing resources are limited. The village school, the country house, and the tin shack are uneconomic, and a nation at war can afford no wastage. Even twenty years ago it was easier to improvise. The costly and intricate apparatus that surgery and medicine demand to-day can be supplied only in limited quantities. The supply of doctors and nurses is limited, and, in the case of the former, there can be no rapid increase in numbers. In the meantime our highly equipped city hospitals will have perforce to degenerate into mere casualty clearing stations. Apart from direct hits, the mere lack of window-glass will decide this. There are not very many weeks in the year during which a hospital could function in Great Britain without window-

glass. Repairs will be out of the question. The supply of joiners and glaziers is limited, as well as the supply of glass. The uselessness of glued paper strips has been sufficiently demonstrated in Barcelona. The cutting of water, electricity, and gas supplies will be an ever-present danger.

To provide a hospital with adequate air raid shelters is almost impossible. Roofs, of course, can be made splinter-proof and the structure fire-proof economically enough, in new buildings. Windows might conceivably be rendered blast-proof by the use of special frames and bullet-proof glass. Against a direct hit, however, only deep shelters are of any use, and for a large crowded building these would have to be on a very big scale.

The solution to the problem is not far to seek. Our hospitals must be moved to the outskirts of the towns. The moving out of the hospitals would only be part of the general scheme. So that each hospital could continue to serve its historic district casualty clearing stations would have to be erected on the present sites. Here again some more co-operation might be required, as the present arrangement involves overlapping in places. These casualty clearing stations should be built underground and be made actually bomb-proof. The site above ground could be sold or leased, and its value would in many cases compensate for much of the expense. The structure below ground would include a garage for the fleet of ambulances. The actual station would comprise the whole out-patient department of the hospital and a generous first-aid and reception suite, with operating theatres and *x*-ray plant. Patients for the hospital could either be received here or be taken direct from their homes by ambulance. In cases of urgency the operation could be performed in the building, and the patient kept until fit enough to stand the transfer. Each station would require to be completely self-contained, air-conditioned, and gasproof. If possible, water should be obtained from an artesian well; if not, large reservoir tanks would have to be installed. A reserve plant would be necessary for electricity lest the main supply should be cut. Wherever the site made it practicable an entrance could be made from the nearest tube station, although this would not necessarily be used during peace time.

Properly planned and constructed, working conditions in these buildings would be vastly superior to those in the majority of out-patient departments in our present hospitals. In time of war their value would be incalculable. During air raids they would form a complete system of casualty clearing stations, where the staff could work under the best conditions. The out-patient department would be quickly and easily transformed into a surgical hospital, the waiting rooms becoming wards and the examination rooms operating theatres. It is then that the value of an entrance from the underground railway would be most appreciated. The hospitals would, as stated, be rebuilt on the outskirts of the town. The benefit to the inmates would be enormous. Of course there are disadvantages. There would be complaints that the receipts from charity would go down when people no longer could see the actual hospital before their eyes. The greatest hardship, however, would be the inconvenience to the medical staff. Our voluntary hospital could never exist were it not for the generous work freely given by the medical profession. The distances they would have to cover when visiting would, especially in London, be enormous.

If war comes these hospitals would be able to continue working knowing that the chance of being damaged was relatively small. If war does not come we would have the finest system of hospitals in the world.—I am, etc.,

Broxbourne, June 8. LESLIE HILL, A.R.I.B.A.

Women on the G.M.C.

SIR,—As a constant observer of the General Medical Council I think it would be improved if it included women members. Apart from the instances which Dame Janet Campbell gives, a considerable number of the complaints against doctors into which the Council inquires concern sexual irregularity, and in such inquiries a woman practitioner might make a special and valuable contribution to the Council's decision. The best type of woman representative would probably be a married woman of early middle age who had considerable experience in general or consulting practice. Such a practitioner would be more likely to be a candidate for direct representation than for nomination by a licensing body. The Medical Women's Federation are probably right in their estimate of the obstacles to the choice of a woman as a member of the Council. While wishing them success in their task of persuading the profession to elect at least one woman member this year as a direct representative, I think that any statutory amendment of the constitution of the Council should provide that a certain proportion of its members should be women. I confess I do not quite see what form this provision could take. It would be impracticable to force any licensing body to appoint a woman representative, and it would not be fair to enact that some of the (at present) few direct representatives should be women. The best arrangement might be, as Sir Henry Brackenbury has suggested, to group the licensing bodies for purposes of representation and to increase the direct representation to about half the strength of the Council. It would then not be unfair to direct that some of this larger body of direct representatives should be women.—I am, etc.,

D. HARCOURT KITCHIN,

London, S.W.19, June 5. Barrister-at-Law.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

At a Congregation on June 6 the honorary degree of Sc.D. was conferred on Sir Henry Dale, M.D., F.R.C.P., F.R.S., Director of the National Institute for Medical Research.

At a Congregation held on June 9 the following medical degrees were conferred:

M.D.—C. H. D. Bartley, W. B. Evans, L. C. Martin, C. G. Roberts.

M.B., B.CHIR.—A. W. Stewart.

Dr. C. S. Myers, F.R.S., will represent the University at the celebration in Paris on June 22 of the centenary of the birth of Théodule Ribot.

Dr. W. J. Turrell has been appointed an examiner for the Diploma in Medical Radiology and Electrology in place of the late Dr. E. P. Cumberbatch.

UNIVERSITY OF SHEFFIELD

At a meeting of the University Council, held on June 9, Dr. R. W. John was appointed to the post of Honorary Demonstrator in Pathology.

UNIVERSITY OF WALES

The following candidates have satisfied the examiners at the examination indicated:

TUBERCULOUS DISEASES DIPLOMA.—H. R. Ackermann, V. N. Ananda Theertha, B. K. Banerjee, R. N. Chaudhuri, Elizabeth M. R. Clarke, S. K. Das Gupta, M. D. Deshmukh, M. A. J. Faridi, N. V. Gokhale, A. C. Guha, E. A. M. Halsted, R. M. Patel, F. R. Peters, M. U Rao, P. Ramakrishna, D. D. Verma.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

An ordinary meeting of the Council was held on June 8, with the President, Mr. Hugh Lett, in the chair. Professor R. E. Kelly was congratulated on the appearance of his name as a knight in the Honours List. A resolution of condolence was passed on the death of Mr. C. H. Fagge, a past Vice-President of the College.

Mr. Seymour Barling was admitted as a member of the Court of Examiners.

The following examiners were appointed for the ensuing year:

Dental Surgery (*Surgical Section*).—C. P. G. Wakeley, E. G. Slesinger, R. M. Vick, J. B. Hume, L. E. C. Norbury, A. C. MacLeod.

Fellowship.—Anatomy: R. B. Green, E. P. Stibbe, F. W. Jones, A. M. A. Moore. *Physiology:* J. Mellanby, D. T. Harris, A. St. G. J. McC. Huggett, H. P. Gilding.

Under the Conjoint Examining Board.—Elementary Biology: A. E. Ellis, S. R. B. Pask, W. Rushton, E. I. Jones. *Anatomy:* A. J. E. Cave, W. J. Hamilton, A. B. Appleton. *Physiology:* D. T. Harris, H. Hartridge. *Midwifery:* T. B. Davies, J. St. G. Wilson, L. H. W. Williams, G. F. Gibberd. *Pathology:* W. G. Barnard, B. W. Williams, D. H. Patey, W. D. Newcomb. *Diploma in Public Health:* Part I, H. M. J. Perry. Part II, C. Porter. *Diploma in Tropical Medicine and Hygiene:* Pathology and Tropical Hygiene, Sir William P. Macarthur; Tropical Medicine and Surgery, N. H. Fairley. *Diploma in Ophthalmic Medicine and Surgery:* Part I, D. L. Davies, R. A. Greeves; Part II, A. Caddy. *Diploma in Psychological Medicine:* F. L. Golla. *Diploma in Laryngology and Otology:* Part I, N. A. Jory, T. E. Cawthorne; Part II, E. Carew-Shaw. *Diploma in Medical Radiology:* Part I, H. T. Flint; Part II, H. W. Davies. *Diploma in Anaesthetics:* A. S. Daly. *Diploma in Child Health:* A. G. Maitland-Jones.

Professor Ernest W. Hey Groves was appointed to give a Moynihan Lecture in the current year. The John Tomes Prize for the years 1936–8 was awarded to Arthur Bulleid, M.R.C.S., L.D.S., for his researches into the bacteriology of the mouth. Mr. W. Sampson Handley was reappointed as the representative of the College on the Court of Governors of the University of Sheffield, and Sir James Walton was appointed representative of the College on the managing committee of the Schiff Home of Recovery in the place of the late Mr. C. H. Fagge.

Diplomas of Fellowship were granted to the following:

E. R. Smith, E. H. C. Harper, A. B. King, G. W. Blomfield, H. G. Hanley, C. C. Jeffery, H. C. Hugh, F. G. St. C. Strange, B. McN. Truscott, Venkiteswariyer Sankarambal, F. A. Simmonds, F. G. Ward, Eugénie L. Willis, L. R. Leask, G. C. L. Pile, E. G. Tuckwell, A. Gourevitch, J. S. Ellis, J. M. Small, T. J. Fairbank, C. G. Rob, D. M. Wallace, A. E. Dreosti, A. H. Barber, J. M. P. Clark, C. McG. Gardner, A. J. Innes, D. F. Lawson, T. M. Pemberton, D. G. Phillips, P. W. S. Riley, A. Rose, K. R. Thomas, E. B. H. Trehair, A. K. Tulloch, A. S. A. Zikry.

Diplomas of Membership were granted to Paul Henderson Davison and Earle Patrick de Silva.

Diplomas in Anaesthetics were granted, jointly with the Royal College of Physicians of London, to the following:

B. J. E. Anson, H. Barat, D. J. T. Brinkworth, J. C. Constable, D. G. Cracknell, J. Crawford, F. W. Crook, D. A. A. Davis, M. S. El Hakeem., G. E. Ennis, W. E. F. Evans, S. M. Geffen, R. P. Harbord, J. N. H. Howell, T. B. Kenderdine, D. A. Knight, B. G. B. Lucas, J. J. McEnery, R. R. Macintosh, Lucy G. MacMahon, Audrey Marsden, J. Montgomerie, Kathleen O'Donnell, W. E. Owens, H. E. Pooler, Breda B. Pratt, Margaret S. Riddell, Shelagh M. Streatfeild, B. I. Taft, N. G. G. Talbot, S. G. Talwalkar, A. M. Williams, L. J. Wolfson, R. Ll. Wynne.

The recognition granted to July 31, 1939, to the following hospitals under the conditions of paragraphs 21 and 23 of the regulations for the Fellowship was confirmed: District and General Hospital, Harrogate (house-surgeon); Warneford, Leamington, and South Warwickshire General Hospital, Leamington Spa (resident house-surgeon). The Radcliffe Infirmary and County Hospital, Oxford, was recognized in respect of the posts of resident surgical officer (while acting as a house-surgeon) and three general house-surgeons.

The Services

DEATHS IN THE SERVICES

Major-General STUART MACDONALD, C.B., C.M.G., late R.A.M.C., died at Elgin on May 19, aged 78. He was born at Elgin on April 14, 1861, the son of the late William Macdonald, and was educated at Elgin Academy and at Aberdeen University, where he graduated M.B., C.M. in 1884. He entered the Army as surgeon on February 5, 1887, became lieutenant-colonel on July 29, 1911, colonel in the long war promotion list of March 1, 1915, major-general on April 7, 1918, and retired on June 18, 1920. He served on the North-West Frontier of India in the Tirah campaign of 1897–8, receiving the Frontier medal with two clasps; in the South African War in 1902, gaining the King's medal with two clasps; and in the war of 1914–18 as an A.M.O. in France and Flanders, when he was five times mentioned in dispatches, in the *London Gazette* of February 17, 1915, January 1, 1916, January 4, 1917, December 24, 1917, and May 25, 1918. He received the C.M.G. in 1916, the C.B. in 1918, in which year he was appointed Honorary Physician to the King, and the Croix de Guerre in 1917. He had been a member of the British Medical Association for thirty-two years.

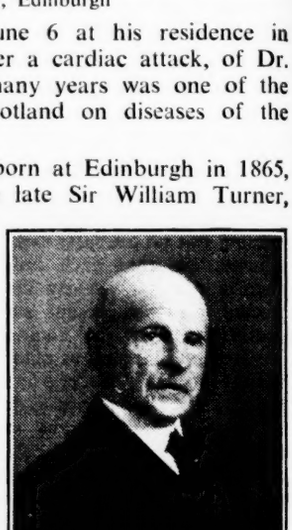
Obituary

A. LOGAN TURNER, M.D., LL.D.

F.R.C.S.Ed., Hon. F.R.C.P.Ed.

Consulting Surgeon to the Ear, Nose, and Throat Department, Royal Infirmary, Edinburgh

The death took place on June 6 at his residence in Walker Street, Edinburgh, after a cardiac attack, of Dr. A. Logan Turner, who for many years was one of the best-known consultants in Scotland on diseases of the ear, nose, and throat.



Arthur Logan Turner was born at Edinburgh in 1865, being the second son of the late Sir William Turner, who was professor of anatomy and later principal of the University of Edinburgh. He was educated at Fettes College, Edinburgh, and afterwards, having taken a medical course at Edinburgh University, graduated M.B., C.M. in 1889. Having served as house-surgeon and clinical tutor to the late Professor Annandale in the Edinburgh Royal Infirmary, Dr. Turner decided to devote himself to general surgery. A career as a general surgeon, however, appeared to be unsuitable after he had sustained an injury to his hand, and he accordingly resolved to specialize in diseases of the ear, nose, and throat. He joined the Royal College of Surgeons of Edinburgh as a Fellow in 1891, and took the M.D. degree of Edinburgh University in 1894. Dr. Turner's first appointment in the specialty which he afterwards followed with great success was that of surgeon for diseases of the ear, nose, and throat to the Deaconess Hospital, Edinburgh. He was appointed surgeon for diseases of the ear, nose, and throat to the Royal Infirmary of Edinburgh in 1906, and held this position for the exceptionally long period of eighteen years till 1924, when he was appointed consulting surgeon in this department to the Royal Infirmary. During the war from 1914 to 1919 he acted, with the rank of captain in the R.A.M.C., as laryngologist to the Second Scottish General Hospital. He joined the British Medical Association in 1895 and attended its annual meetings with great regularity. He was secretary of the Section of Laryngology and Otology at the Edinburgh Meeting in 1898, vice-president of the same Section at Swansea in 1903, and president at the Edinburgh Meeting of 1927. For the latter meeting he edited the Lister centenary volume entitled *Joseph, Baron Lister: A Centenary Volume, 1827–1927.* He was also vice-president of the Section of Oto-laryngology at the Centenary Meeting of the Association in 1932.

In the course of his long career many honours came to Logan Turner, especially in connexion with his specialty. In 1925 he was elected President of the Royal College of Surgeons of Edinburgh, and during his tenure of this post the University of Edinburgh conferred upon him its degree of LL.D. in 1926, while in the following year the Royal College of Physicians of Edinburgh made him an honorary F.R.C.P. He was president of the Medico-Chirurgical Society of Edinburgh in 1927. At various times he held the following offices: President of the

Sections of Laryngology and Otology in the Royal Society of Medicine, London; Honorary Member of the American Medical Association; Honorary Fellow of the American Laryngological, Rhinological, and Otological Society; Corresponding Fellow of the American Laryngological Association; Honorary Member of the Austrian Otological Society; Corresponding Member of the Vienna Laryngological and Rhinological Society; Corresponding Member of the French Society of Otology and Laryngology. In 1923 he delivered the Semon Lecture at the Royal Society of Medicine.

Logan Turner made many contributions to medical literature, particularly in connexion with diseases of the ear, nose, and throat, such as *Skiagraphy of the Accessory Nasal Sinuses*, 1912, *Intracranial Pyogenic Disease*, 1931, etc., and he acted as joint editor of the *Journal of Laryngology and Otology* from 1921 to 1929. The manual which he edited on *Diseases of the Nose, Throat and Ear* is well known; he brought this out first in 1924, and it has gone through several editions. He also made several important contributions to general literature dealing chiefly with historical subjects. Among these was a biography of his father under the title *Sir William Turner, K.C.B., F.R.S.: A Chapter in Medical History*, which was published in 1919. He rendered an important service to Edinburgh University by acting as editor of the *University of Edinburgh Journal*. This periodical developed greatly under the enthusiastic editorship which he carried on for ten years (1928–37). It came to form a valuable source of common interest, uniting the various Edinburgh University clubs and branches of the Graduates' Association which are scattered throughout the Empire and America. At the 350th anniversary celebration in 1933 of the founding of Edinburgh University Logan Turner rendered a still further service to his Alma Mater by acting as the inspirer and editor of the *History of the University of Edinburgh, 1883–1933*. This volume continued through the immediately past half-century the history which Principal Sir Alexander Grant had brought out at the tercentenary of the University under the title, *The Story of the University of Edinburgh*.

After Logan Turner's term of office in charge of wards in the Royal Infirmary came to an end he became one of the managers of this institution. To this work he gave up a large amount of time, and in it he took an exceptionally active interest. For the commemoration of the bicentenary year of the Infirmary he produced a small book entitled *The Royal Infirmary of Edinburgh, 1729–1929*, in which he outlined its story. Thereafter for several years he devoted a great deal of research to extending this work, so that in 1937, in connexion with the appeal of the management for funds necessary for extension, he was able to bring out what has undoubtedly been his chief literary work, the *Story of a Great Hospital, The Royal Infirmary of Edinburgh, 1729–1929*. In this work he brought many previous little-known points of interest to the notice of the public, and led up to the proposals for the bicentenary extension scheme which has been completed in the present year.

Dr. Logan Turner was a man of many and varied interests. His summer holidays were largely spent travelling on the Continent or in America, where he also took the opportunity of visiting medical schools or attending professional congresses. He was a man of genial temperament and kindly disposition, combined with an unassuming manner which gained the respect and affection of his professional colleagues both as a consultant and as a personality. A wide circle will deeply regret his death. He was unmarried. He is survived by a sister and by a brother, Dr. Aldren Turner, who is consulting neurologist to King's College Hospital. A memorial service was held on June 8 in St. John's Church, Princes Street, Edinburgh, after which the funeral was private.

[The photograph reproduced is by Drummond Young, Edinburgh.]

Supplementing the notice of Dr. JOHN LITHGOW in last week's issue, Dr. John Reid (Forth) writes: Dr. Lithgow was a native of Cleland, and it was in his own village that he found his life's work, for there he practised his profession for the long period of forty-six years. He was a typical country doctor, respected and regarded with affection by everyone in the district. He was a member of the local school board and of the parish council, and in the forefront of every effort for the improvement of the lot of the people among whom he practised. He was a Justice of the Peace for the County of Lanark. I had known Dr. Lithgow for a lifetime. Like myself, he practised medicine in a country district in days when transport made hospitals seem very far away. The doctor was physician, surgeon, midwife, and chemist. Major operations performed on the kitchen table in the patient's own home were a commonplace of practice. He was not named by his patients; "The Doctor" was an appellation which indicated both awe and affection. He lived to see great changes. He rode on horseback or drove in a gig in his early days, he cycled later, and in time found the motor-car a valuable adjunct to a country practice. Those of us who called him friend knew him for a man who set a high standard in his profession, who shirked no duty, who gave of his best to those who trusted him, and who earned for himself an honoured place in the community in which he lived and worked.

We regret to announce the death on May 25 of Dr. ARCHIBALD SHAW of St. Austell, Cornwall, a former president of the South-Western Branch of the British Medical Association. A Scotsman by birth, Dr. Shaw graduated M.B., C.M. at the University of Glasgow in 1890, and took his M.D. in 1897. Before settling at St. Austell he had been medical officer of health for Jura and Colonsay. He was for many years a member of the old St. Austell Urban District Council and became chairman in 1904, and after that he was for twenty years part-time medical officer of health. He resigned that office some years ago and, with increasing blindness, he had retired from most of his public activities. Dr. Shaw had been a strong advocate of better housing conditions for the people and of improved water supply and sanitary services. Two of his children are members of the medical profession, and his son-in-law succeeded him in practice at St. Austell.

Dr. CHARLES RALPH COOKE-TAYLOR, O.B.E., of London and Chepstow, died on May 24, aged 55. He was educated at Fettes College, at Oxford, and at University College Hospital. His career was extraordinarily varied. As a young man he went to Connemara to live in a peasant's cottage in order to study the Irish question. He was called to the Bar in 1910, but later became a medical student and qualified M.R.C.S., L.R.C.P. in 1927. He specialized in psychiatry, and took the D.P.M. in 1931. During the war he had been attached to a hospital in Serbia, worked through the typhus epidemic, and was taken prisoner by the Bulgarians. He was president of the Serbian Units Branch of the British Legion, and had been decorated by the Serbian Government for his services to that country. He engaged also in clinical work at the Maudsley Hospital, the Beckenham Ex-Service Men's Welfare Association Hospital, and the British Hospital at Camden Town. His whole life was devoted to unobtrusive social service, especially for victims of the war, and he won a very widespread and deep esteem for his practical sympathy. Much of his time was devoted to politics. He was a life member of the National Liberal Club, contested the

Holborn Division in 1910, and on eight occasions afterwards was a candidate in the Dulwich Division of Camberwell. In 1937 he was entertained by that division at a complimentary dinner to celebrate his twenty-five years' service in the constituency. His scholarly disposition found outlet in the Irish Literary Society's work; he was honorary secretary of that society for many years. He was a vice-president of the London Liberal Federation, a member of the Council of the Liberal Party Organization, an officer of the University of London Liberal Association, and a member of the British Medical Association. He was connected with Liberalism in Chepstow, Monmouthshire, where he had a country house. His most prominent medical interest was the treatment of shell-shock.

Dr. EBENEZER ROSS FAULKNER, since 1923 surgical director of the Manhattan Eye, Ear, and Throat Hospital in New York City, died of coronary thrombosis on May 29. Born in Glenholme, Nova Scotia, on January 28, 1876, he studied medicine at Dalhousie University, where he received the M.D. in 1901. In the course of postgraduate work at University College and St. Thomas's Hospital he obtained the Fellowship of the Royal College of Surgeons of England in 1908, and in the same year made his home in New York. After teaching anatomy and surgical pathology at New York University and at Cornell Medical Schools, he specialized in oto-rhino-laryngology, and became a citizen of the United States in 1922.

Medico-Legal

Divorce for Insanity: "Care and Treatment"

Divorce can only be decreed on the ground of insanity if the respondent is incurably insane and has been continuously under care and treatment for a period of at least five years immediately preceding the presentation of the petition. "Care and treatment" is detention in pursuance of an order or inquisition under the Lunacy and Mental Treatment Acts, 1890–1930, or certain other statutes. In the case of Shipman *v.* Shipman[1] the respondent wife had spent several long periods of irregular leave of absence, and the President of the Division, Sir F. Boyd Merriman, could not find that she had been "detained" during those periods and therefore held that she had not been under care and treatment for a period of five years immediately before the petition.

In the recent case of Green *v.* Green[2] the respondent husband had been confined under certificate since 1907. He had, however, been released on trial several times, and within the statutory period of five years he had spent a fortnight in a house at Whitstable belonging to the Mental After-Care Association. This house is approved by the London County Council for the reception of persons released on trial, and although patients enjoy in it greater liberty than in a mental hospital they are under the control and observation of the association and its officers as agents for the local authority from whose hospital they come, and if they lapse from good conduct they are immediately sent back. The President found on these facts that there had been no interruption in the period of detention. As in Shipman's case, he did not regard certain infrequent week-end absences on parole as interrupting the detention. He pointed out that, so far as the reality of the matter was concerned, the arrangement could equally well have been made under Section 57 of the 1890 Act, which provides for the boarding-out of a person of unsound mind in the custody of his relatives or friends, in which case there would in his opinion have been no break in the detention. He distinguished the case from one of release on trial, where there are no such elements of restraint and the person to whom the patient is sent is not an agent of the local authority. Although the arrangement may be regarded as an absence on trial under the Lunacy Act, there is no question of release preparatory to discharge or of after-care after discharge. The patient belonged to a class of patients who have been in hospital for a very long time and have become stabilized—who never will be discharged. Their conduct is good within the limits of the hospital, and they are considered fit for trial where they can behave themselves equally well in a less strict environment. In that sense they are released on trial, though they are still subject to discipline and to modified restraint. The President therefore granted the decree *nisi* for which the wife prayed.

[1] 1939, P. 147. *British Medical Journal*, 1938, **2**, 1394.
[2] 1939, 3 All E.R., 89.

Medical Notes in Parliament

In the House of Lords on June 13 the Charitable Collections (Regulation) Bill was read a second time. The Adoption of Children (Regulation) Bill was read the third time and passed.

A motion on the evacuation of hospitals in vulnerable areas of England and Scotland was down for discussion by the House of Lords on June 14.

The remaining stages of the Civil Defence Bill were taken in the House of Commons this week.

Diphtheria Immunization in Guernsey

On May 5 Mr. GROVES asked the Lord President if he had considered a petition from fifty-eight registered men and women against the imposition of compulsory immunization in the island of Guernsey, and also a similar petition signed by 4,300 persons living in the island; and whether the imposition of compulsion had now been sanctioned. Earl WINTERTON, who replied, said that two petitions in similar terms, one of which was signed by a number of medical practitioners, had received full consideration. No representations were made by any Government Departments against the proposed compulsory law, which received the Royal Assent on March 9 last.

Sir FRANCIS FREMANTLE asked on June 8 how many children immunized in Guernsey against diphtheria contracted the disease during the past year; how many who had not been immunized contracted the disease; and whether the cases were mild, severe, or fatal in either group. Sir SAMUEL HOARE, in reply, circulated the following report from the medical officer of health for Guernsey:

1938

Children under 14 inoculated (over eight weeks) who contracted diphtheria numbered 10. These were all mild cases with one exception, in which, although the case was a severe one, the patient made a rapid recovery. There were no deaths.

Children under 14 not immunized who contracted diphtheria numbered 374. The majority of the cases were mild, but a proportion were severe. There were fourteen deaths.

June 6, 1938, to June 6, 1939

Children under 14 inoculated (over eight weeks) who contracted diphtheria numbered 18. These were all mild cases with one exception, in which, although the case was a severe one, the patient made a rapid recovery. There were no deaths.

Children under 14 not immunized who contracted diphtheria numbered 298. These were mostly of a mild type, but there were some severe cases, with thirteen deaths.

Health and Training of Unemployed

During the debate in the House of Commons on June 5 on the vote for the Ministry of Labour Mr. ERNEST BROWN said it was estimated that over 11,000,000 persons were

covered by existing arrangements for voluntary schemes or by the legislation under which holidays with pay could be given.

Mr. WESTWOOD suggested that as nurses were scarce adequate maintenance should be provided to enable a full course of nursing to be provided for many of the unemployed young women. The necessary grants might also be given for the training of home helps or health visitors.

Mr. TOM SMITH referred to a statement of Lord Rushcliffe contained in the Unemployment Assistance Board's report, stating that a definite group to which attention needed to be given was that of men handicapped in obtaining work by physical defects, often of eyes and teeth, which were remediable. Medical needs were not within the range of the Board's responsibilities, but he called attention to the matter as indicating a direction in which some extension of the public health services might profitably be considered.

Mr. LENNOX-BOYD said that the Minister of Labour would consult with the Ministry of Health on the subject raised by Mr. Smith.

Prevention of Silicosis: Canadian Experiments

On June 6 Mr. J. Griffiths asked for information on the experiments carried out by mining engineers in Canada into the prevention of silicosis by the disposal of quantities of metallic aluminium powder in dust clouds in mines; and whether, in view of the success claimed for this method of prevention, similar experiments would be conducted in this country. Earl WINTERTON said that the special committee advising the Medical Research Council on industrial pulmonary diseases was maintaining close contact with the Canadian investigators of this method, and some related experiments were being made here under the committee's direction.

Health Services in the Colonies

On a vote for the salaries and expenses of the Colonial Office on June 7 Mr. MALCOLM MACDONALD said social services were being developed in the Colonies mainly out of local resources but with some help from other sources like the Colonial Development Fund. Medical men throughout the Colonial Empire were waging a campaign against the pests and diseases which afflicted mankind. For years past they had been counter-attacking the tsetse fly and were reconquering territories which had been abandoned to this insect. They were also reducing the ravages of yellow fever, leprosy, yaws, malaria, tuberculosis, and other diseases. The Colonial Office sought in other ways to build up health in the Colonies. Illness was sometimes caused by malnutrition, often due not to inadequate food but to the wrong kind of food. That was why the inhabitants of the Colonies were urged to grow a greater variety of fresh foodstuffs for their own consumption, and information was sought on the best types of foodstuffs required in various territories. This year the Colonial Office had started a series of field surveys of diet in relation to health. A beginning was made recently in Nyasaland, and the team of experts conducting this survey would continue their investigations later on in other territories. In Nairobi the Government was getting about 1,000 African school children extra supplies of milk, and in many parts of the Colonial Empire local governments gave supplementary food to children at school. In Ceylon the Government spent 1,000,000 rupees a year feeding school children. Experiments had started with adults. At Kampala station, Uganda, some 200 men on building work were chosen who had been drawn from a tribe notorious for poor physique and inefficient work. He hoped the experiment of giving these men a full diet, including meat, would prove that on that type of diet, which was often unusual among natives, these people could be turned into as good workpeople as existed anywhere in Africa. The authorities in the Colonies were bending their energies to the provision of proper dwellings for the people. New legislation had been passed to ensure better standards of sanitation in buildings in the mining areas of the Gold Coast. Slum clearance was proceeding in Accra and Sekondi, and in Uganda peasants were abandoning mud huts. In Trinidad there was a five-year housing plan. Some of the worst slums were coming down in Jamaica, and similar reports came from other Colonies.

During the subsequent debate Mr. CREECH JONES said an obvious need in the Colonies was better health provision, and he pointed out the importance of creating an auxiliary medical corps for the Colonies, which might absorb dozens of the doctors and nurses who had been driven out of Germany and Austria. Was it not possible to create alongside the existing medical service an auxiliary medical corps which could in places man moving field dispensaries? There were great areas where nothing of a preventive character was being done to populations suffering cruelly from disease. Mr. NOEL BAKER said the survey of Africa conducted by Lord Hailey should have been done years ago by the Government. Social research and education should not be limited by what each individual Colony could afford with perhaps a little help from the Colonial Development Fund. He hoped Mr. MacDonald would take up the suggestion of employing refugee doctors.

The vote for the Colonial Service was approved.

Sale of Drugs and Packed Medicines

Dr. ELLIOT told Mr. Garro Jones on June 8 that he would consider whether in the interests of public health any further special control was necessary over the sale of drugs by persons other than qualified pharmacists.

Mr. W. W. WAKEFIELD drew attention on June 8 to a case heard in Dublin police court on May 25. He said this indicated that a company with offices in London and Dublin took advantage of the poisons legislation of Eire to sell to the public in Great Britain dangerous drugs the sale of which was strictly controlled in this country.

Sir SAMUEL HOARE replied that the Pharmacy and Poisons Act applied only to sales in this country. In the case to which Mr. Wakefield referred the drug was one subject to the Pharmacy Act but not to the Dangerous Drugs Act. To control the importation of all substances which are subject to the Pharmacy Act would, Sir Samuel thought, cause much inconvenience to legitimate trade. Experience hitherto did not suggest that legislation for this purpose would be warranted. Sir Samuel Hoare added that habit-forming drugs within the scope of the Dangerous Drugs Act were subject to restriction whether sold in the United Kingdom or sent into the United Kingdom as the result of a sale effected outside the United Kingdom.

Radiological Examination of Militiamen

On June 6 Sir HENRY MORRIS-JONES asked the Minister of Labour whether, in connexion with the medical inspection of militiamen preparatory to training, he would take into consideration the desirability that it should include an *x*-ray examination of the chest. Mr. ERNEST BROWN said that the arrangements for medical examination included provision for the services of expert radiologists in all cases in which this was considered by the medical boards to be desirable in order to establish a man's fitness for service. In addition, information in the possession of the tuberculosis officer of the local authority would be available.

Examination of Militiamen: Classification of Findings

On June 12 Mr. OLIVER asked the Minister of Labour whether, in view of the fact that Clause 4 of the Military Training Bill provided, for the first time, for a medical examination of a comprehensive cross-section of the male age group 20–21, and taking into account the results of the examinations conducted by the Ministry of National Service in 1917–18 on men of 18 years of age, he would consider arranging for the medical boards to elicit sufficient information from the examinees to enable the results to be classified according to occupational and economic status by adopting the Registrar-General's social classifications as employed in the

Decennial Supplement for 1930–32, Part II, (*a*) Occupational Mortality. Mr. ERNEST BROWN said that the records of the medical examinations of militiamen would yield valuable information on the health and physique of men of different occupations in the 20–21 age group, but for technical reasons it would not be possible to classify the results in the way done in the decennial supplement.

Medical Evidence in Drunk-in-Charge Cases

On June 12 Sir WILLIAM DAVISON asked the Home Secretary if he would hold an inquiry into the methods used in payment of medical men employed to give evidence in motoring cases where drivers were charged with being drunk in charge of a motor-car, and, in particular, whether the medical man was informed that he would be paid a larger fee if a conviction was obtained. Mr. PEAKE, who replied, said it would be improper to make the amount of the fee payable in such cases in any way dependent on the result of subsequent legal proceedings. If Sir W. Davison would furnish him with particulars of any cases in which it was suggested that this practice had been followed inquiries would be made.

Medical News

The second Sanderson-Wells Lecture will be delivered by Major-General Sir Robert McCarrison in the clinical lecture theatre of the Middlesex Hospital, W., on Tuesday, June 27, at 4.30 p.m. His subject is "Deficiency Diseases." At the end of the lecture Sir Robert McCarrison will show some lantern slides. Members of the medical profession will be admitted on presentation of a visiting card.

An international congress for medical aviation will be held at Lille on July 2.

A course in broncho-oesophagoscopy in French and English will be held at the Hôpital Necker and Hôpital des Enfants Malades and the École d'Anatomie des Hôpitaux, Paris, from July 3 to 13 under the direction of Dr. J. L. Le Mée, Dr. Braine, Dr. Chevalier Jackson, and others. The number of participants will be restricted to twenty-one. The fee is 3,000 francs (100 dollars). Further information can be obtained from Dr. Soulas, 14, Rue de Magdebourg, Paris, 16e.

The summer dinner of the Oxford Graduates' Medical Club will be held at Exeter College, Oxford, on Friday, June 23, at 7 for 7.30 p.m., with Lord Nuffield in the chair. The price of the dinner is 17s. 6d., inclusive of wines. Dinner jackets will be worn and gowns will not be necessary.

The fifty-seventh annual dinner of the West London Medico-Chirurgical Society will be held at the Trocadero Restaurant, Piccadilly, W., on Wednesday, July 5, at 7.30 for 8 p.m.

The annual inspection of work in progress at the National Physical Laboratory will be held on Tuesday, June 27, from 3 to 6 p.m. Guests will be received by the President of the Royal Society and the Chairman of the General Board of the Laboratory.

Founder's Day at Epsom College this year will be celebrated on Saturday, July 1, when Sir Walter Langdon-Brown will give away the prizes.

The issue of *Paris Médical* for June 3, which is devoted to infectious diseases, contains a list of the Paris hospitals with the names of the staff as well as an illustrated account of the Pasteur Institutes outside France.

The next meeting of the Left Book Club Medical Group will be held on June 20 at 8.30 p.m. at the University Labour Club, 15, Percy Street, W.C.1, when Dr. Adrian Stephen will speak on the treatment of crime.

The Derry Gardens of over one acre, and 100 feet above street level, on the roof of Derry and Toms building, adjoining Kensington High Street station, will be open each day from Monday, June 19, to Saturday, June 24, on behalf of St. Bartholomew's Hospital. Nurses will be in attendance to receive donations.

NEW CLINICAL RESEARCH PRIZE

A personal gift of £1,000 from Mr. N. Bishop Harman, Treasurer of the B.M.A., for the endowment of a biennial prize to encourage clinical research of an individual character was announced at the meeting of the Council of the Association on June 14. It is proposed that the new prize should be open to hospital consultants in Great Britain or Northern Ireland who are not attached to recognized teaching schools. The prize will be for clinical research. It will, therefore, be complementary to the existing Sir Charles Hastings Clinical Prize of the Association, which is offered annually to general practitioners with the object of stimulating systematic observation, research, and record in general practice.

EPIDEMIOLOGICAL NOTES

Enteric Fever

The infectious fevers generally continue to decline and the principal diseases remain below the median value for the last nine years and much below the figures for the corresponding week last year. Enteric fever is a notable exception to the general rule, especially for Scotland and Eire. In England and Wales 25 cases of enteric fever were notified—the same as last week. One of these belonged to the small outbreak at Kendal, Westmorland, referred to last week, in which there have been 6 cases in all. Water supplies appear to have been excluded as the source of the infection; possibly some article of food was responsible, as the cases were limited to two households. In Scotland there were 38 cases of enteric fever, 34 of which were due to paratyphoid B, compared with 8 in the previous week. Twenty-six of the paratyphoid cases, some of which are under observation, occurred in the Hawick area of Roxburghshire, where there were 7 cases last week. The disease has been of a mild character and there have been no deaths so far. The source of the infection has not yet been identified. Of the other 8 cases notified during the week 4 were in Glasgow, 1 in Airdrie Borough, and 3 in Ayr Borough, where 1 case was notified in the previous week. In the week ended June 10, 4 cases of typhoid fever at Uddingston in Lanarkshire were removed to Motherwell County Hospital—one adult and three children, one of whom has died, were affected.

Of the 65 cases of typhoid fever notified in Eire, 2 were in Limerick and 63 in Dingle Rural District, Co. Kerry. The outbreak has involved a limited area round Feoghanac on the west coast of Ireland. It has been found that the outbreak is due to the use of skimmed milk, a popular article of diet in the district. In the following week 8 further cases were reported and removed to hospital.

Typhus Fever in Eastern Europe

The figures furnished by the Health Section of the Secretariat of the League of Nations show that typhus is still prevalent in Poland, Rumania, Turkey, Yugoslavia, Bulgaria, and Lithuania, but with the exception of the last-named country the incidence was lower in the first quarter of the present year than in the corresponding period of 1938. In Lithuania 42 cases were notified in six districts in February, 32 cases in six districts in March, and 23 cases in five districts in April. In Poland the seasonal rise was earlier than in the previous year, but the maximum incidence was not reached until April. In the four four-week periods ended April 22, 337 (14), 463 (20), 580 (23), and 619 (28) cases were reported respectively; the figures in parentheses denote deaths. In Rumania 146 cases were reported in Bessarabia in March and 48 in the Old Kingdom, compared with 424 and 107 respectively in the corresponding period of 1938. In Bessarabia cases fell from 5,893 in 1936 to 4,148 in 1937 and 1,603 in 1938. In Yugoslavia there were 88 cases for the four-week period ended May 21, compared with 83 in the immediately preceding four-week period: 62 of the cases occurred in the banovine of the Drina and 7 in that of the Vrbas. The disease has remained sporadic in Bulgaria; not more than 41 cases were notified in the first quarter, widely distributed among the twelve districts.

No. 22

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended June 3, 1939.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for : *(a)* England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland. Median values for the last 9 years for (a) and (b).

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for : (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases ; a blank space denotes disease not notifiable or no return available.

Disease	1939					1938 (Corresponding Week)					1930-8 (Median Value Corresponding Weeks)	
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)	(a)	(b)
Cerebrospinal fever	30	4	8	2	—	29	2	13	5	1		
Deaths		1	1				1	1				
Diphtheria	717	92	195	49	17	986	139	149	56	28	921	139
Deaths	10	1	7	3	—	24	2	6	2	—		
Dysentery	31	10	23		—	52	18	72		—		
Deaths				—	—				—	—		
Encephalitis lethargica, acute	5	1	—		—	1	—	1	1	—		
Deaths		—					2					
Enteric (typhoid and paratyphoid) fever	25	1	38	65	2	31	4	16	1	—	32	
Deaths	2	—	—	1	—	1	—	—	—	—		
Erysipelas		20	66	6	5			71	6	3		
Deaths		—					—					
Infective enteritis or diarrhoea under 2 years	39	7		3	3	42	15	12	9	4		
Deaths												
Measles		38	192		8			271		16*		
Deaths	3	—	—	2	1	20	7	10	4	1		
Ophthalmia neonatorum	99	13	29		—	117	22	27		1		
Deaths												
Pneumonia, influenzal†	728	60	8	3	18	919	72	3	3	32	837	70
Deaths (from influenza)	14	1	2	—	—	38	8	1	—	—		
Pneumonia, primary			225	22				240	11			
Deaths		10		8	9		16		14	10		
Polio-encephalitis, acute	—	—				—	—					
Deaths		—					—					
Poliomyelitis, acute	13	2	2		—	5	2	4		—		
Deaths		—					—					
Puerperal fever	2	2	13	2	—	7‡	7	13	5	1		
Deaths		1§					—					
Puerperal pyrexia	193	15	15		2	172	24	26		2		
Deaths												
Relapsing fever	2	—			—	—	—			—		
Deaths												
Scarlet fever	1,427	135	203	53	70	1,967	188	396	103	91	1,939	204
Deaths	1	—	2	—	—	6	1	3	—	—		
Small-pox	—	—	—		—	—	—	—		—		
Deaths	—	—		—	—	—	—		—	—		
Typhus fever	—	—	—	—	—	—	—	—	—	—		
Deaths				—	—				—	—		
Whooping-cough		282	236		19			102		18		
Deaths	18	4	4	—	—	13	2	2	2	—		
Deaths (0-1 year)	285	39	64	20	18	318	61	81	41	19		
Infant mortality rate (per 1,000 live births)	45	34				53	50					
Deaths (excluding stillbirths)	3,974	673	604	169	145	4,504	849	616	185	119		
Annual death rate (per 1,000 persons living)	9.8	8.6	12.2	11.4	12.7	11.1	10.8	12.5	12.5	10.5		
Live births	5,866	1,024	972	345	307	7,083	1,349	989	352	290		
Annual rate per 1,000 persons living	14.4	13.1	19.7	23.2	27.0	17.4	17.2	20.1	23.8	25.7		
Stillbirths	233	42	47			310	51					
Rate per 1,000 total births (including stillborn)	39	39	46			42	36					

* 7 cases in Belfast alone.

† Includes primary form in figures for England and Wales, London (administrative county), and Northern Ireland.

‡ After October 1, 1937, puerperal fever was made notifiable only in the administrative county of London.

§ Death from puerperal sepsis.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, W.C.1.

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QUERIES AND ANSWERS

Effects of Oil Fumes

"A. T." would be very grateful if anyone would let him know of any disease (? industrial) directly attributable to the fumes of Diesel engine oil as used in machines of the cement-mixer type.

Income Tax

Private Use of Car—Depreciation

"W. P." has a practice in a wide country area. He agreed with the inspector of taxes to write back one-seventh of the running expenses of his car, and the inspector now claims that one-seventh of the depreciation allowance should also be written back.

*** The real question is what is the correct ratio of professional to private use; if it is 6 to 1 then it is correct to exclude one-seventh of all costs, including depreciation, which is a provision for the cost of replacement. But one-seventh—that is, the ratio of one day a week—seems high for a practice of this type, and one-tenth would, in our opinion, usually be regarded as appropriate. We suggest that our correspondent sees the inspector with a view to arranging a compromise on that basis.

Tax Payable by Assistant

"INQUIRER" refers to the reply to "Senex" in our issue of June 3, and asks what tax would be payable in similar circumstances if the gross remuneration were £500, out of which £52 had to be paid for rooms and £75 for motor-car upkeep.

*** The £52 is not deductible, as it would not be "incurred wholly, exclusively, and necessarily in the performance of the duties," and the gross assessment would therefore be £500 − (£75 + £1) = £424. Tax thereon would be approximately £3.

LETTERS, NOTES, ETC.

Matrimonial Causes Act, 1937

Dr. T. P. REES (medical superintendent, Warlingham Park Hospital, Surrey, writes: In a note on page 1156 of the *British Medical Journal* for June 3, under the heading "Mental Patients' Records in Divorce," after referring to recent comments of the President of the Probate, Divorce, and Admiralty Division in a case concerning the Warlingham Park Mental Hospital, you state that it is the practice of the Board of Control to place the patient's file at the disposal of the court. This seems to imply that the Warlingham Park Mental Hospital authorities have acted differently. Any such implication would not be justified. I have always followed this practice since the Act was passed, and should be glad if you would kindly make this correction.

Pitfalls in Chemotherapy

"LAMBDA" writes: The observations of Dr. W. H. Palmer (*Journal*, June 10, p. 1203) on two cases in which chemotherapy apparently served only to suppress the signs of spreading infection lose much of their significance by his failing to state the doses given. It is unfortunately a very common practice to give such drugs as sulphanilamide or M & B 693 in inadequate doses only three times a day, and when this is done results such as he describes are to be expected: the concentration attained in the tissues only suffices to diminish the rate of bacterial growth and to prevent rapid and widespread tissue invasion. Except in urinary tract infections, which for obvious pharmacological reasons are amenable to treatment with smaller doses at longer intervals, any acute infection requiring treatment with these drugs demands that they be given in adequate doses four-hourly *day and night*: only so can an effective concentration be maintained continuously in the tissues and bacterial activity be completely arrested.

Medical Golf

The annual competition of the Manchester District Medical Golfers' Association was held over the course of the Mere Golf and Country Club in fine weather on June 7, when there were 110 competitors. There was a tie for the Challenge Cup, Dr. E. A. Gerrard (Manchester) and Dr. J. Padkin (Northenden) each returning a net score of 72. Dr. J. Padkin won the Walter gold medal for the best gross score of 72 from scratch. The Walter silver medal for the member returning the best gross score from amongst those with handicaps of ten and upwards was won by Dr. G. Ferguson (Oldham)—gross 87, handicap 10, net 77. Club prizes for best net score holes 1 to 9 were won by Mr. Neville Young (Manchester) with 36½, and holes 10 to 18 by Dr. R. P. Parker (Royton) with 35.

Infant Feeding

The Ostermilk Handbook describes in detail the composition and the carefully controlled manufacture of the two "ostermilk" foods. It goes into the history of infant feeding with dried milks and gives, for general guidance, a series of tables indicating the quantities necessary at different ages and according to whether the infant is being fed three-hourly or four-hourly. There is a useful section on "practical considerations in infant feeding," and a series of charts showing in general terms the normal physical and mental development of an infant from 1 month to 2–3 years. This booklet has been prepared by the Glaxo Laboratories, Ltd., of Greenford, Middlesex, and contains an appendix in which details are given of other Glaxo preparations.

Pelvic Disproportion: Corrigendum

Dr. NORMAN REECE writes: I regret that owing to absence on holiday I did not have an opportunity to correct the proofs of my letter on pelvic disproportion published in the *Journal* of May 27 (p. 1112). A typist's error has destroyed the sense of paragraphs 3 and 6, the affected parts of which should read: ". . . I do not think at present that induction should be performed before this diameter of the foetal head has reached 3.4 inches—that is, three and a half weeks prematurity—and it follows that Caesarean section should be performed if the true conjugate be below 3.4 inches." "(6) Even if the method of trial labour be adhered to, surely the selected cases should be submitted to pelvimetry and cephalometry to avoid the dreary farce of hoping that a hard 3.8-inch head will go through a true conjugate of 3.4 inches. Conceivably it might, but it is inexcusably unimaginative to allow the attempt."

Correction

Two errors occurred in the notice of Dr. Joseph Marie's "English, German, French, Italian, and Spanish Medical Vocabulary and Phrases," published last week at page 1182. This volume contains 358 pages and the American price is 3 dollars. Messrs. J. and A. Churchill Ltd. inform us that they will be the English publishers of the work.